MDP-750/A2
RMT-M25A

SERVICE MANUAL

US Model
Canadian Model
MDP-750
E Model
MDP-A2

Photo: MDP-750

SPECIFICATIONS

Type — CD/CDV/LD Player
Signal readout — Optical (Laser beam reflection)
Signal format system — EIA standard, NTSC color system
Playing time

			(minutes)
LD	CAV	30 cm (12 in) double-sided	60
		20 cm (8 in) double-sided	28
		20 cm (8 in) single-sided	14
	CLV	30 cm (12 in) double-sided	120
		20 cm (8 in) double-sided	40
		20 cm (8 in) single-sided	20
CD		12 cm (5 in) single-sided	74
		8 cm (3 in) single-sided	20
CDV		Audio portion	20
		Video portion	5
VSD		Video portion	5

Digital audio specifications

Frequency response — 4 Hz to 20kHz (±0.3 dB)
Signal-to-noise ratio — More than 115 dB (EIAJ)*
Dynamic range — More than 99 dB (EIAJ)
Wow and flutter — Below measurement limit (±0.001% W.PEAK) (EIAJ)

Video specifications

Horizontal video resolution — 425 lines
Signal-to-noise ratio — More than 50 dB

Input/output specifications

Video output 1, 2 — 1.0 Vp-p, 75 ohms, unbalanced
Audio output 1, 2 — Stereo L, R
Analog: 200 mVrms (1 kHz, 40% modulation)
Digital: 200 mVrms (1 kHz, –20 dB)
S video output 1, 2 — Luminance: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance: 0.286 Vp-p, 75 ohms, unbalanced
Audio digital output (optical) — –18 dBm, wavelength 660 nm
Headphone output — 12 mW (8 ohms)
Impedance = 8 ohms
CONTROL S IN — Mini jack
Mic jack — Standard jack
1mV (Impedance below 1 kilohm)

* *Measured according to EIAJ (Electronic Industries Association of Japan) standards.*

– Continued on next page –

使用時は添付資料も参照のこと
Refer to the additional documents

CD/CDV/LD PLAYER

SONY®

Power requirements

Power requirements	120V AC 60Hz (MDP-750) 120/220/240V AC adjustable, 50/60Hz (MDP-A2)
Power consumption	45 W
Mass	10 kg (22 lb)
Dimensions	Approx. 430 × 117 × 433 mm (w/h/d) (17 × 4 5/8 × 17 1/8 in.)
Operating temperature	+5°C to +35 °C
Ambient humidity	5% to 90%

Remote Commander RMT-M25A

Principle of operation	Infrared pulse
Power requirements	3 V DC (2 size AA batteries)
Dimensions	Approx. 44 × 26 × 214.4 mm (w/h/d) (1 3/4 × 1 1/16 × 8 1/2 in.)
Mass	Approx. 120 g (4.2 oz) (including batteries)

Supplied accessories

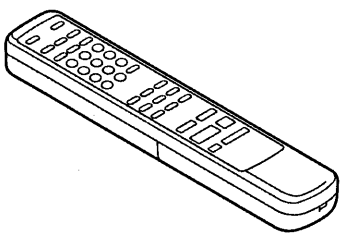
Remote Commander RMT-M25A (1)
Size AA (R6) batteries (2)
Audio/Video cable
(phono plug 3↔phono plug 3) (1)
AC power cable (1)

Design and specifications are subject to change without notice.

Accessories

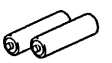
Make sure the shipping box contains the following accessories:

RMT-M25A Remote Commander

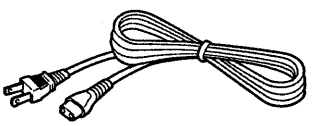


Audio/Video connecting cable
(phono 3 ↔ phono 3)

Two AA (R6) batteries



AC power cable



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.

3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recomment their replacement.

5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

6. Check the B+ voltage to see it is at the values specified.

7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

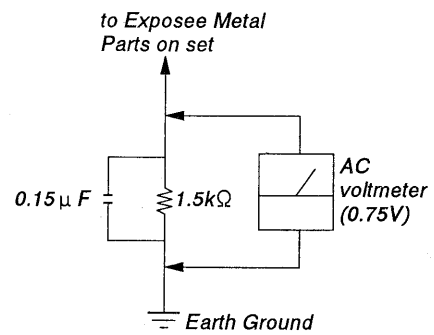


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage form any exposed metal parts to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufactures' instructions to use these instruments.

2. A battery operated AC milliammerter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

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About Operating Voltage

Before operating the Multi Disc Player, make sure that the operating voltage of your unit is identical with that of your local power supply.

The MDP-750 operates at 120 V AC 60 Hz only and does not have a voltage selector.

If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

Introduction

This introduction explains the organization of this manual and the principles of operation of the Multi Disc Player (MDP).

About These Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Consumer electronics manuals have been notorious for being hard to comprehend. Having recognized this fact, we have made an attempt with this manual to avoid the usual pitfalls by trying to not pretend that the equipment being described is as simple as a bread toaster. Most likely this is your first Multi Disc Player and may be the only one you will own. With that in mind, we have striven to write the instructions in straight-forward English while trying to keep the procedures simple and systematic.

Because the Multi Disc Player is capable of playing laser discs (LDs), compact discs (CDs), and compact disc videos (CDVs), these instructions are divided into the equivalent of three "manuals"—one for each type of disc—with a fourth section providing instructions for enjoying Karaoke.

The following summarizes what you'll find in this manual.

To Play a Laser Disc (LD)

This section covers all functions associated with playing LDs (page 13). Unique to LD play are Auto Resume, LD Digest, Frame Search and Step Play. The MDP-750 allows you to playback both sides of an LD without turning it over. The Quick Start function shortens the waiting time before an LD starts playing. The Digital Picture function allows you to freeze pictures even while playing a CLV LD.

To Play a Compact Disc (CD)

This section explains the operation of CDs and compares most closely to CDV audio operations (page 26).

To Play a Compact Disc Video (CDV)

This section covers procedures for CDV operation and shares many functions with CD play (page 33). There are no functions unique to CDV play in this Multi Disc Player.

To Play Karaoke

This section is a short instruction for Karaoke playing (page 34).

What to Do First

Once you have read through this page, read "Principles of Operation" (page 6), then go ahead and connect up the Multi Disc Player to your television and/or stereo system using the connection diagrams on pages 11 and 12. After you have done this, you will be ready to play a disc. We suggest an LD or CD. Begin with the section, "How to Load and Play an LD (or a CD)".

This section is extracted from MDP-750 instruction manual.

The Principles of Operation

Beyond the playing of discs, the functions of the Multi Disc Player range from simple to advanced. Some functions vary depending on what type of disc (laser disc, compact disc, or compact disc video) you are playing. Nevertheless, keep in mind that the majority of the buttons have been designed to achieve a comparable effect for each type of disc you are playing. Therefore, the following paragraphs can briefly summarize what the basic Multi Disc Player functions allow you to do. (Control names that differ from the function name appear in uppercase letters.)

Primary Functions are so-called because they entail the traditional functions of all disc players.

Variable Speed Functions group operations according to the fact that they let you vary play speed, therefore, easily locate ("search") scenes or tracks as you watch or listen.

Repeatable Functions are memory functions that let you play selections repeatedly or according to a play list. Playback can be started from the point you stopped at. Because the system finds and plays selections according to your request, some repeatable functions also serve as "search" functions.

Auxiliary Functions are additional functions that simply add to what you can do with the Multi Disc Player.

Primary Functions	*Variable speed Functions*	*Repeatable Functions*	*Auxiliary Functions*
Power	Speed Scan (SCAN)	Auto Resume Playback	LD Digest (LD DIGEST)
Open/Close	Still/Step Scan (STILL/STEP)	Pre-Programmed Play (PGM)	Sound Quality Functions: (AUDIO MONITOR, ANALOG/CX)
Play		Chapter/Track Search (ACS/AMS)	On-Screen Display (DISPLAY)
Pause		Frame/Time Search (FRAME/TIME)	Karaoke Functions: (ECHO/MIC LEVEL)
Stop		Repeat Play (1/SIDE/ALL, REPEAT, REPEAT A↔B)	
Side A/B			

Introduction to Your Player

The MDP-750 Multi Disc Player integrates the functions of three machines into one: laser disc, compact disc, and compact disc video player. The entertainment potential afforded by the combined capabilities of this multi-faceted machine amounts to some 30 to 35 functions. Below is an explanation of the kinds of discs the Multi Disc Player plays.

The MDP-750 Plays Three Classes of Optical/Digital Discs*

The MDP-750 Multi Disc Player plays all three types of optical discs currently available for home entertainment. The following table illustrates their types and features.

Disc Class	Disc Logo	Disc Type	Size	Play Side	Play Time	
Laser Discs For movies, operas, and concerts	LASER DISC	LD Single	8 in. (20 cm)	Single Side	CAV	14 min
					CLV	20 min
		8-inch LD	8 in. (20 cm)	Double Side	CAV	28 min
					CLV	40 min
		12-inch LD	12 in. (30 cm)	Double Side	CAV	1 hr
					CLV	2 hr
Compact Discs For music	COMPACT disc DIGITAL AUDIO	CD Single	3 in. (8 cm)	Single Side	20 min	
		CD	5 in. (12 cm)	Single Side	74 min	
Compact Disc Videos For music videos and educational material (Digital Audio)	CD VIDEO	CDV	5 in. (12 cm)	Single Side	Video+Audio 5 min Audio 20 min	
	VIDEO SINGLE DISC	VSD	5 in. (12 cm)	Single Side	Video+Audio 5 min	

Multi Audio Discs

digital AUDIO MULTI AUDIO

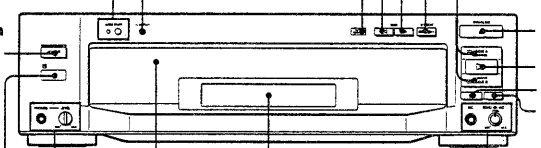
On laser discs bearing this logo, the analog tracks are recorded in multiplex, and the digital tracks are recorded in stereo.

* *These apply only to those discs recorded in the NTSC standard. The MDP-750 cannot play CED, VHD discs or PAL video discs, CD-ROM, CD-GRAPHICS, CD-I discs, aluminum-lined discs or MD (MiniDisc) discs.*

Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

Front Panel



FL DISPLAY button
Each time you press the button, the front panel display turns on/off.
You can also use the button to clear the freeze picture which appears while in stop mode.

QUICK START button and indicator
To turn off the indicator, press the button while in stop mode (see page 16).

POWER button and indicator
ON: Green
OFF: Off

Remote Commander Sensor

PHONES jack and LEVEL control
To listen with headphones, plug stereo headphones into the PHONES jack. Adjust the volume with the LEVEL control.

Front Cover
Automatically slides down when you press the OPEN/CLOSE (⏏) button, and the disc tray comes out.

AUTO RESUME indicator
Lights up when you can resume playing an LD (see page 17).

◀◀/▶▶ SCAN buttons
Press the right button to scan forward; Press the left button to scan backward.

··▶· LD DIGEST button and indicator
Press the button to shorten the viewing time for an LD(see page 18).

SIDE A/SIDE B button and indicators
Press the upper or lower side of the button to select the playing side of an LD.

⏏ OPEN/CLOSE button

▶ Play button

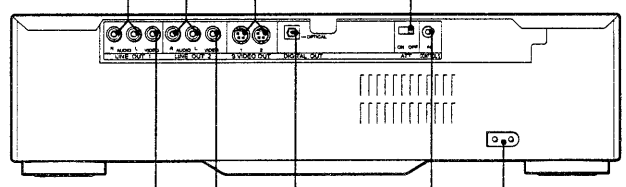
II Pause button

■ Stop button

MIC jack and ECHO/MIC LEVEL controls
To play karaoke, plug a microphone into the MIC jack, adjust the microphone volume and echo level with the controls.

Front Panel Display

Rear Panel



S VIDEO OUT 1, 2
Connect the YC-15V Cable (not supplied).

LINE OUT 1, 2
Audio Connectors

ATT (Attenuator) switch
Distorted singing sounds can be corrected by setting this switch to ON. This will lower the volume.

AC IN connector
Connect the AC power cable (supplied).

LINE OUT 1, 2
Video Connectors

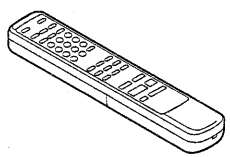
CONTROL S IN jack (mini type)
Use this jack if your TV etc. has a CONTROL S output jack.
- By connecting this jack to the CONTROL S output jack on your TV, you can control this player with the Remote Commander pointed at the TV.
- Connect the RK-G69 cable (not supplied).
- If you plug one end of the cable into the player and leave the other end unplugged, the Remote Commander will not work.

DIGITAL OUT
Fiber Optical Connector

Accessories

Make sure the shipping box contains the following accessories:

RMT-M25A Remote Commander



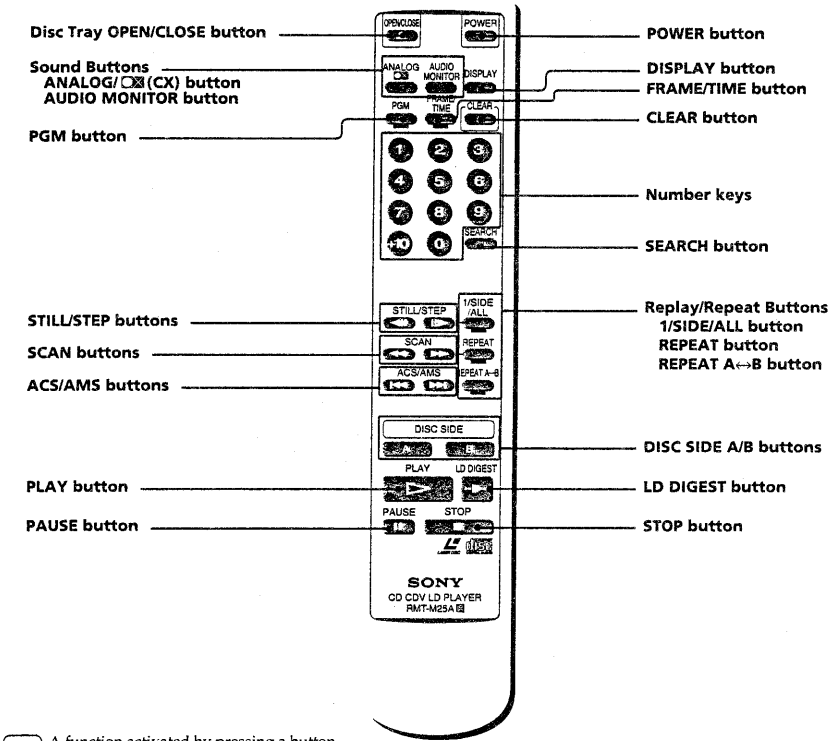
Audio/Video connecting cable
(phono 3 ↔ phono 3)

AC power cable

Two AA (R6) batteries

Controls on the Remote Commander

You can use the Remote Commander (Remote) to control the player or the identical buttons on the player itself.



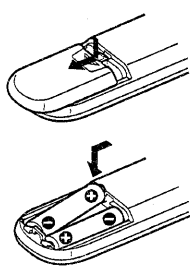
A function activated by pressing a button with a yellow mark can be canceled by pressing the CLEAR button

To Activate the Remote Commander

Open the back cover, and insert two size AA (R6) batteries according to the polarity indicated in the illustration. The batteries will last for about 6 months. If the range of the Remote Commander becomes noticeably short, replace all the batteries with new ones. If the Remote Commander is not to be used for a long time, remove the batteries to avoid damage from possible battery leakage.

Remote Commander Precautions

- Do not let sunlight or powerful artificial light fall directly on the Remote Commander sensor on the front panel (of the player) as it may interfere with Remote Commander operation.
- Use size AA (R6) batteries only.

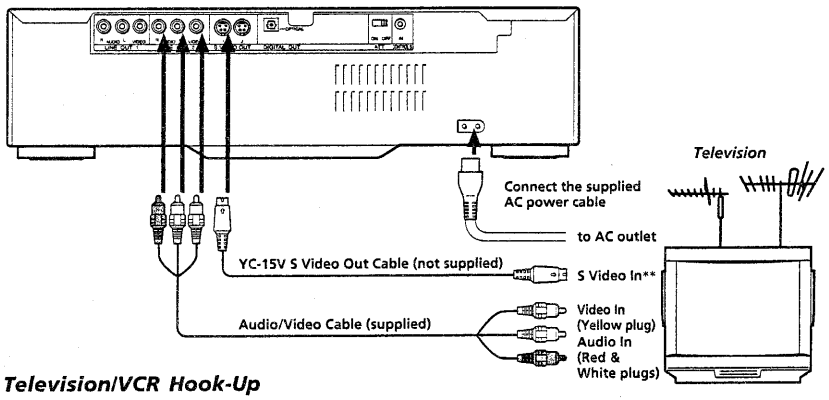


Insert two size AA (R6) batteries

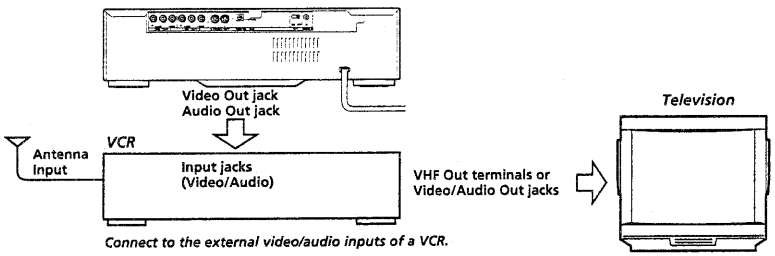
How to Connect the Television

To play LDs or CDVs, hook up a television to the Multi Disc Player. Take out the supplied audio/video connecting cable (yellow, red and white plugs). Use this to connect the player to the television.* Once you have hooked-up the television, set the input selector on the TV to "Video". Before connecting or disconnecting any of the cables, turn off all equipment.

Television Hook-Up


Television
Connect the supplied AC power cable
to AC outlet
YC-15V S Video Out Cable (not supplied)
S Video In**
Audio/Video Cable (supplied)
Video In (Yellow plug)
Audio In (Red & White plugs)

Television/VCR Hook-Up



Connect to the external video/audio inputs of a VCR.

Connecting Precautions:

- Make sure all equipment is turned off before connecting or disconnecting any cables.
- Connection methods may differ; when in doubt about a connection, consult the TV or VCR manufacturer's manual.
- If the sound or picture is disturbed by noise, try moving the equipment farther apart.
- Firmly insert plugs into the jacks. A loose connection may cause noise.
- To prevent later interference with TV broadcast reception, turn off all equipment connected but not currently in use.

* *If the TV has only a monaural phono jack for audio input, use a VMC-910/915 Connecting Cable (not supplied).*

** *If your TV has an S Video Input jack, obtain a YC-15V S Video Connecting Cable, and use it to connect the TV to your player so that you can get a better image.*

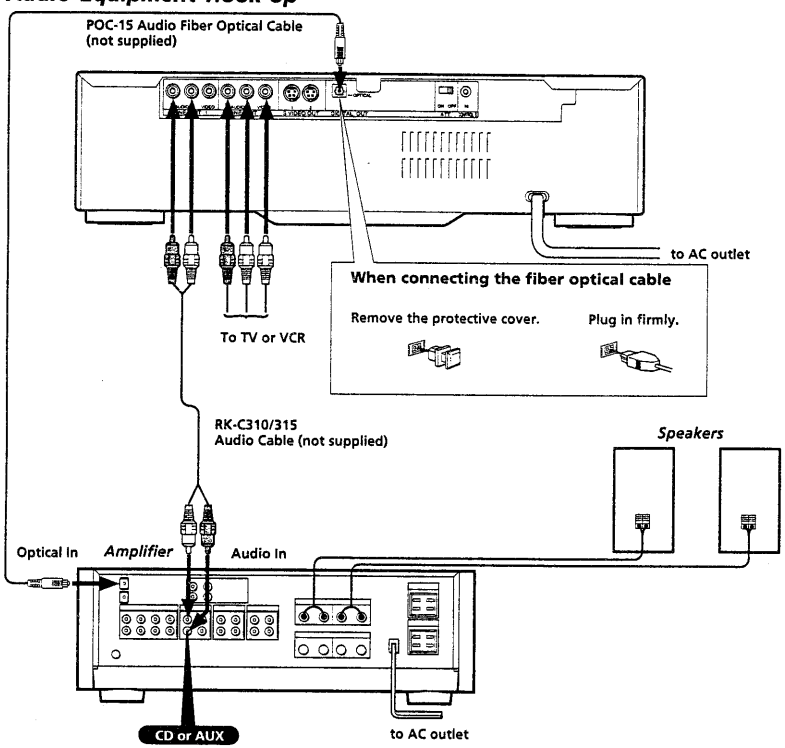
How to Connect Audio Equipment

To achieve full stereo sound from your Multi Disc Player, hook up a stereo system following the diagram below. Use an RK-C310 (or RK-C315) audio connecting cable (not supplied) to connect the Multi Disc Player to your amplifier or receiver. Before connecting or disconnecting any of the below cables, turn off all equipment.

To Achieve Digital Sound

Digital sound recordings afford high quality sound reproduction, (see Glossary, page 38). If your amplifier also has a fiber optical connector, or if you have a D/A converter unit with optical input, according to the diagram below, connect the POC-15 Audio Fiber Optical Cable (not supplied) between the DIGITAL OUT connector on the Multi Disc Player and the amplifier or D/A converter. Note that digital signals are always output from the Multi Disc Player except when you play discs that are not digitally recorded. Such discs output analog sound from LINE OUT only.
Sound from a microphone cannot be output from the DIGITAL OUT connector. To output sound from a microphone, connect the player to the amplifier with an Audio Cable (Red & White plugs).

Audio Equipment Hook-Up



Connection Precautions

- Make sure all equipment is turned off before making any of the above connections.
- Firmly insert plugs into the jacks. A loose connection may cause noise.
- When listening to a radio broadcast, switch off the Multi Disc Player to get better reception.

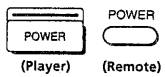
To Play a Laser Disc

This section shows you how to conduct all the procedures associated with playing LDs.

How to Load and Play an LD (Laser Disc)

After you have connected the Multi Disc Player to the TV and/or stereo system, you can begin playing a laser disc. Locate the POWER, OPEN/CLOSE, and PLAY buttons on the Remote Commander or the front panel of the player.

1 Turn on the multi disc player.

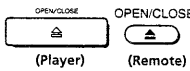


Press POWER on the player or Remote commander (Remote).
You can also directly turn on the player by pressing OPEN/CLOSE (⏏) or ► on the player. When using the Remote Commander, press POWER.

2 Turn on the TV and stereo system.

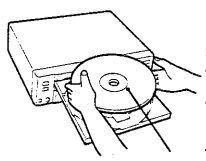
TV: Set the input selector on the TV to "Video".
Stereo System: Turn on the amplifier or receiver and select CD or AUX for audio output.

3 Open the disc tray.



Press OPEN/CLOSE (⏏).
The front cover of the player slides down and the disc tray comes out.

4 Place a disc on the tray.



Carefully center a single disc on the tray.
If you insert more than one disc, or if the disc is not seated properly, it may not play or it may damage the player.

What is this indication?

NO DISC

This indication appears in the front panel display when the tray is empty.

5 Start playback.

Press PLAY (►).**
The disc tray closes and the upper side of the disc starts playing.
You can also start playing by pressing the disc tray to close it manually.

Do not transport the player while playing a disc as it may cause damage to the disc.

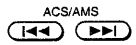
* *The player determines that the upper side of the disc is side "A," and the other side is "B," regardless of the label "A" or "B" printed on the disc.*

** *When playback of the upper side of the disc (side A) ends, the other side (side B) starts playing automatically. While the playing side is changing, the last frame on side A appears. If nothing is recorded on side B, playback stops.*

To Advance or Reverse .....

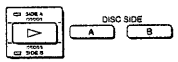
Hold down SCAN (◀◀ or ▶▶).

To Advance or Go Back One Chapter at a Time .....



Press ACS/AMS (I◀◀ or ▶▶I) on the Remote Commander.

To Select the Disc Side .....



Press (DISC) SIDE A to play the upper side of the disc from the beginning.

Press (DISC) SIDE B to play the other side of the disc from the beginning.*

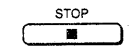
To play only one side .....

Press 1/SIDE/ALL on the Remote Commander twice. "1 SIDE" lights up in the front panel display. Press PLAY (▶) or (DISC) SIDE A/B. The current disc side of the LD is played once.

To Interrupt Playback .....

Press PAUSE (❚❚).
The sound mutes and the picture freezes.
To resume playback, press PAUSE (❚❚) or PLAY (▶).

To Stop Playback .....

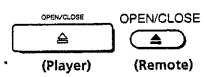


Press STOP (■).
- The picture freezes and stays on the screen. To clear the picture, press FL DISPLAY on the player.
- To resume playback of an LD from the point you stopped at, press PLAY (▶) (see page 17). To play again from the beginning of disc side A (or B), press (DISC) SIDE A (or B).

To Stop Playback and Turn the Power Off .....

Press POWER on the player or Remote Commander.
To resume playback of an LD from the point you stopped at, press ▶ on the player (see page 17).

To Stop Playback and Remove the Disc .....



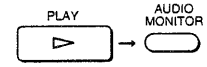
Press OPEN/CLOSE (⏏).
Remove the disc and press ⏏ again to close the empty tray.

* *When playback of side B ends, the player stops playing.*

To Have the Player Pause Before Starting .....

Press PAUSE (❚❚), after doing step 4 on page 13.
The Tray closes and the player waits at the start of the disc until you press PLAY (▶) or PAUSE (❚❚). If you want to play side B, press (DISC) SIDE B, then PAUSE (❚❚).

To Play a Stereo LD or a Second Audio Program (SAP) LD .....



Press PLAY (▶), then press AUDIO MONITOR on the Remote Commander.
This function alternates the sound output on a disc that has been recorded with two sound tracks, such as bilingual discs.

The procedure below indicates how the output and the display changes with each press.
The active track appears for three seconds on the TV screen. It always appears in the front panel display.
When you select 1/L (or 2/R), the sound of the left (or right) channel is output from both speakers.

Procedure	Screen message	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (▶).	No message	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)
2 Press AUDIO MONITOR.	1/L	Left channel	Soundtrack 1 (left channel)
3 Press AUDIO MONITOR again.	2/R	Right channel	Soundtrack 2 (right channel)
4 Press AUDIO MONITOR again to return to stereo status.	1/L 2/R	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)

To Switch From Digital to Analog Sound .....

Press ANALOG/◯⊠ on the Remote Commander to switch the player to analog or digital sound. Digital affords a better quality sound reproduction. If the LD contains a digital sound signal, the player automatically sends that output to the amplifier or receiver. To switch to analog sound, press ANALOG/◯⊠ on the Remote Commander. "♪ ANALOG" appears on screen for three seconds. To return to digital sound, press ANALOG/◯⊠ until "♪ DIGITAL" appears on screen.
With certain discs there may be a difference in volume.

Discs With a ◯⊠ (CX) Label ...

LDs bearing the ◯⊠ label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range on analog sound. The player detects most ◯⊠ discs and when you switch to analog sound, it activates the CX noise reduction system automatically. When playing a ◯⊠ disc which does not contain a code to activate the CX noise reduction system, press ANALOG/◯⊠ until "CX ON" appears on screen. The CX noise reduction system will be activated.

Understanding Displays and Messages When Playing LDs

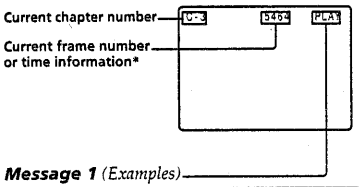
You can determine the player operating status or disc information in one of two ways: (1) by displaying the information on the TV screen, or (2) by looking at the front panel display. Locate the DISPLAY button on the Remote Commander.

To View On-Screen Information

DISPLAY

Press DISPLAY on the Remote Commander. Each time you press DISPLAY, messages appear on the TV screen as shown below. The tables below are keys to the messages that appear on the right of the screen.

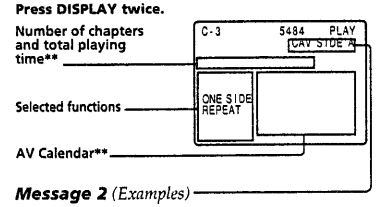
Press DISPLAY once.



***Message 1** (Examples)*

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing LD
STOP	Operation stopped
PAUSE	Operation momentarily stopped
⏩ / ⏪	Speed Scanning
SEARCH	Searching

Press DISPLAY twice.



***Message 2** (Examples)*

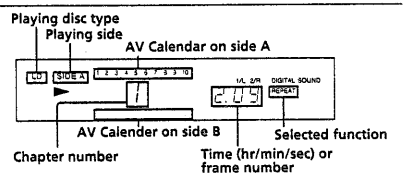
Screen Display	Currently Playing
CAV SIDE A	Standard-play disc side A
CAV SIDE B	Standard-play disc side B
CLV SIDE A	Extended-play disc side A
CLV SIDE B	Extended-play disc side B
1/L	First soundtrack/left channel
2/R	Second soundtrack/right channel
♪ DIGITAL	Digital sound
♪ ANALOG	Analog sound

To turn off the display, press DISPLAY again.

* *Discs not indicating time data to the second indicate instead as two-digit numbers such as, "22:".*
** *Appears when the QUICK START indicator is off (for an LD with TOC).*

Reading the Front Panel Display

The illustration to the right is an example of what is displayed on the front panel of the player.



To View AV Calendar

When playing an LD containing TOC (Table of Contents) data, the AV Calendar is available. Press QUICK START on the player while in stop mode to turn off the indicator beside the button, then press PLAY (►). The AV Calendar on disc side A will be displayed. To view the AV Calendar on side B, press (DISC) SIDE B while the QUICK START indicator is off. The AV Calendar on disc side B will be displayed. The calendar shows information on the total number of selections on the disc or those programmed to play. As selections are played, the corresponding numbers in the AV Calendar disappear.

To Turn Off the Front Panel Display

Press FL DISPLAY on the player. Each time you press FL DISPLAY, the display turns on/off. You can also use the button to clear the freeze picture which appears while in stop mode. Press FL DISPLAY to turn off the display. The screen goes blank.

How to Resume Playback—Auto Resume

This function can only be used for LDs. Even if you press STOP (■) or POWER to stop playback, you can still continue viewing from the scene you stopped at.

To View From the Scene You Stopped at

1 Press STOP (■) or POWER to stop playback.

STOP ■ or POWER

The AUTO RESUME indicator on the player lights up, the picture freezes, and the point you stopped at is stored.* When you press POWER, the indicator lights up briefly, then goes off with the power.

2 Press PLAY (►).**

PLAY ▷

The player searches for the scene where you stopped playing, then playback starts. If you want to pause playing just before starting, press PAUSE (❚❚) instead of PLAY (►).

* *The point where you stopped playing is cleared when:*
– *you press OPEN/CLOSE (⏏), (DISC) SIDE A/B or ACS/AMS (⏮/⏭).*
– *you carry out Chapter Search or Frame/Time Search.*
** *When the power is off, press ► on the front panel. The player turns on automatically and resumes playback. When you use the Remote Commander, press POWER, then PLAY (►).*

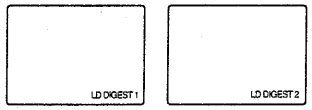
How to Shorten the Viewing Time for an LD—LD Digest

You can quickly view an LD, in about two thirds or a half of its original playing time. In quick view mode, the player skips scenes at regular intervals to cut down one third or a half of the playing time. You hear the normal speed sound as the scenes progress so that you can understand the plot of a movie etc.* Locate the LD DIGEST button on the Remote Commander or player.

To Start Quick Viewing .....

LD DIGEST (Player) LD DIGEST (Remote)

Press LD DIGEST while playing an LD.
The LD DIGEST button indicator on the player lights up and the player starts skipping scenes.**
Each time you press LD DIGEST, "LD DIGEST 1" and "LD DIGEST 2" alternate on the screen.
If you select "LD DIGEST 1", about one third of the playing time is cut down.
If you select "LD DIGEST 2", about a half of the playing time is cut down.



To Resume Normal Playback .....

Press PLAY (►).
The LD DIGEST button indicator goes off.

* *The sound is also skipped as the scene skips.*
** *You can conduct LD Digest only when the LD is played in normal play mode.*

How to Search for a Particular Scene

To find a particular scene, scan the disc forward or in reverse at high speed.* The sound is automatically muted while scanning. Locate the SCAN buttons on the Remote Commander or player.

To Scan Forward or in Reverse (Speed Scan) .....

SCAN (◄◄) (►►)

Hold down SCAN (►►) to scan forward.
Hold down SCAN (◄◄) to scan in reverse.

To Resume Normal Playback .....

Release SCAN (◄◄ or ►►).

* *A certain amount of visual noise and instability is inevitable while scanning a disc.*

How to Search by Chapter Numbers—Chapter Search

LDs are divided into sections called "chapters". Chapters are usually listed on the jacket or label of the disc. By entering the desired chapter number, you can have the player find the chapter and play it. Use ACS/AMS—Automatic Chapter Searching/Automatic Music Sensing—to advance or reverse one chapter at a time.
Locate the number keys and the ACS/AMS buttons on the Remote Commander.

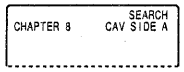
To Locate a Particular Chapter (Chapter Search) .....

For example, to locate chapter 8, press "8" on the Remote Commander.

(8)

Press one of the number keys on the Remote Commander corresponding to the chapter you want to play.*

The player starts searching for Chapter 8.



The player finds Chapter 8 and starts playing from the beginning of Chapter 8.

To Enter a Number Greater Than 10 .....

Do this to make a numerical sum. For example, to enter 14, press +10 and 4; to enter 30, press +10, +10, +10 and 0.

(+10) → (X) **Press +10 and one of the number keys.**

(+10) → (4) ....."14"

(+10) → (+10) → (+10) → (0) ....."30"

If you make a mistake while entering, press CLEAR on the Remote Commander, then enter the correct numbers.

To Check the Current Chapter Number .....

DISPLAY

The current chapter number appears in the front panel display.
Press DISPLAY on the Remote Commander to display the chapter number (upper left-hand corner) on screen. When the QUICK START indicator is off, you can also look at the AV Calendar (see page 16) for the chapters remaining to be played on the LD (with TOC) by pressing DISPLAY twice.

To Advance or Go Back One Chapter at a Time (Skip Search) .....

ACS/AMS (|◄◄) (►►|)

Press ACS/AMS (|◄◄) on the Remote Commander once to return to the beginning of the current chapter.
Press ACS/AMS (►►|) once to advance to the beginning of the next chapter.
Press ACS/AMS (|◄◄) twice before the picture reappears to return to the beginning of the previous chapter.
Hold down ACS/AMS (|◄◄ or ►►|) for continuous skip search.

To Resume Normal Playback** .....

Release ACS/AMS (|◄◄ or ►►|).
The player automatically resumes play from the beginning of the selected chapter.

* *Chapter Search does not function properly if the disc does not contain chapter numbers, or the chapter number entered does not exist.*
** *In addition to normal play mode, you can conduct Chapter Search and Skip Search while in Freeze-Frame, Repeat or Pause mode. When the specified chapter appears after the search, play continues in the same mode.*

How to Search by Frame Number or Time —Frame/Time Search

Video scenes are counted as a series of still pictures or "frames". The player keeps track of the number of frames that have been played from the beginning of the disc to the current position. Similarly, the player also keeps track of the elapsed playing time from the beginning of the disc. To play from a particular frame or time, use the Frame/Time Search function. Locate the FRAME/TIME, SEARCH buttons, and number keys on the Remote Commander.

On CAV (standard-play) discs, enter a frame number.
On CLV (extended-play) discs, enter the time.*

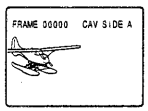
To Enter the Elapsed Frame or Time

1 **Press FRAME/TIME** on the Remote Commander.

FRAME/TIME

The screen displays "00000" (for CAVs) or "0:00:00" (for CLVs).

CAV (standard-play) disc



CLV (extended-play) disc

2 **Enter the desired multi-digit number** corresponding to the frame or time you want to find.

Enter five digits for CAVs.
Enter four digits for CLVs displaying the time to the second.
Enter two digits for CLVs displaying the time to the minute.

Sample Entry for CAV Discs
To locate frame number 12340, press the number keys in the order shown on the right:

(1) → (2) → (3) → (4) → (0)

Sample Entry for CLV Discs
To locate the 12-minute, 5-second point, press the number keys in the order shown on the right:

(1) → (2) → (0) → (5)

If you pressed the wrong key, press FRAME/TIME to clear the number, then enter the correct number.

3 **Press SEARCH** on the Remote Commander.

SEARCH

Play starts from the time or frame specified in step 2.**

To Check the Frame/Time Numbers .....

DISPLAY

Press DISLAY on the Remote Commander.
The current frame or current time number appears on the screen.
You can also find them on the front panel display.

To Cancel Frame/Time Search .....

CLEAR

Press CLEAR on the Remote Commander before pressing SEARCH.

* *"CAV" or "CLV" should be noted somewhere on the disc jacket.*
** *In addition to normal play mode, you can conduct Frame/Time Search while in Freeze-Frame, Repeat or Pause mode. When the specified frame or time appears after the search, play continues in the same mode.*

How to Play Frame-by-Frame

Once you have found a particular scene, you can examine the progression of that scene by advancing or reversing the action one frame at a time (Step Play), or freezing the action into a still picture (Freeze Frame). Locate the STILL/STEP buttons on the Remote Commander.

To Play One Frame at a Time (Step Play)

1 **Press STILL/STEP (◄II or II►) on the Remote Commander once.**

STILL/STEP ◄II II►

The frame freezes.

2 **Press STILL/STEP (◄II or II►) repeatedly.**
To reverse ◄II
To advance II►

STILL/STEP ◄II II►

Each press shifts the image one frame backward or forward.
Hold down the button for continuous frame-by-frame action.

To Freeze the Action ..... (Freeze Frame)

PAUSE II

Press PAUSE (II) once.

To Resume Normal Playback ..

PLAY ▷

Press PLAY (►).

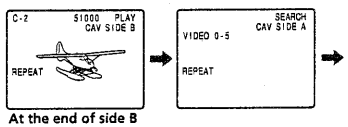
How to Replay the Same LD Selections

These instructions show you how to program the player to play the same scenes over and over until you signal the repetition to stop. You can replay both sides, a single side, a single chapter or a section between one pair of points on the disc. Locate the REPEAT, 1/SIDE/ALL, and the REPEAT A↔B buttons on the Remote Commander.

To Repeat Both Sides of the Disc

REPEAT

Press REPEAT on the Remote Commander. "REPEAT" lights up in the front panel display. When the player reaches the end side B, it returns to the beginning of side A and starts playing again.



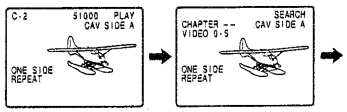
Returns to the beginning of side A.

At the end of side B

To Repeat the Current Side of the Disc (One Side Repeat)

1/SIDE /ALL → 1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL twice, then REPEAT on the Remote Commander. "REPEAT" and "1 SIDE" light up in the front panel display. When the player reaches the end of one side, it returns to the beginning and starts playing the side again.



Returns to the beginning of the side

At the end of one side

To Repeat the Current Chapter (Single Repeat)

1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL once, then REPEAT. "REPEAT" and "1" light up in the front panel display. The current chapter repeats continuously.

To Cancel Repeat Play

REPEAT

Press REPEAT.

To Cancel One Side Repeat

1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL once, then REPEAT.*

To Cancel Single Repeat

1/SIDE /ALL → 1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL twice, then REPEAT.*

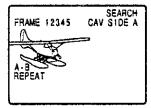
* *You can also cancel Repeat, One Side Repeat and Single Repeat by pressing CLEAR on the Remote Commander.*

To Repeat One Section of the Disc (Repeat A↔B)

1 Go back to the start of the scene you want to replay.

2 **Press REPEAT A↔B** on the Remote Commander at the beginning of where you want replay to begin. This marks where replay is to begin. The "REPEAT" and "A-" light up, and "B" indication flashes.

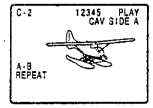
REPEAT A-B



3 Let the player run to the end of the scene you want to repeat.

4 **Press REPEAT A↔B again.** This marks where replay is to end.

REPEAT A-B



"REPEAT" and "A-B" light up in the front panel display.
The player repeatedly plays the scene between the two points selected.

To Cancel Repeat A↔B

CLEAR

Press CLEAR on the Remote Commander.

To Replay From a Specific Point on the Disc (Memory Search)

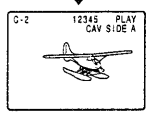
1 Go to the point from where you want to start playback.

2 **Press REPEAT A↔B** to mark the starting point.

REPEAT A-B

3 **Press CLEAR** to turn off the indication "A–B REPEAT". (Thus not setting an end point.)

CLEAR



4 **Press SEARCH** on the Remote Commander at any point you like on the disc.

SEARCH

The player goes to the point you marked and starts playing.*

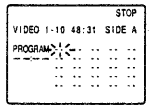
* *The point marked "A" from where you can resume playback is cleared if you open the disc tray, turn off the player, or carry out a Frame/Time Search.*

How to Play Only Certain Chapters—Programmed Play

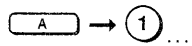
You can choose, in any order you like, the chapters the Multi Disc Player plays. This play list is stored in the player until you either remove the disc or turn off the power. After playing all the selections, the player stops and waits for your next command. You can program up to 25 chapters for sides A and B combined. Locate the number keys, DISC SIDE A/B, PGM and PLAY buttons on the Remote Commander.

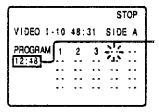
For example, you want to play chapters 1, 2, 3 on side A, chapter 10 on side B, then stop playing momentarily. Continuing with chapter 4 on side B, then back to side A to play 7 (in that order).

1 Press PGM on the Remote Commander.
"PROGRAM –:–" appears on screen.
"PGM" flashes in the front panel display.



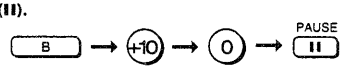
2 Press DISC SIDE A, then 1, 2 and 3.

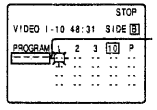




Total playing time* (See the section below, "To Check the Total Playing Time".)

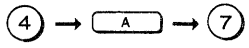
3 Press DISC SIDE B, then +10, 0, PAUSE (II).

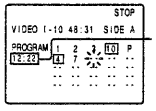




When you enter PAUSE (II), the display returns to "–:–" "P" indicates that a PAUSE (II) is entered.

4 Press 4, DISC SIDE A, then, 7.





The total playing time of the programmed chapters entered after the PAUSE (II).

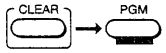
5 Press PLAY (►).

To Check the Total Playing Time .....

You can check the total playing time of the programmed chapters on the LD containing TOC (Table of Contents) data. To display the total playing time of the programmed chapters, press the QUICK START button while in stop mode to turn off the indicator, then press PLAY (►) to display the AV Calendar before you press the PGM button. When you program chapters on side B while checking the total playing time, press (DISC) SIDE B to display the AV Calendar on side B before pressing the PGM button.

* *If you enter chapter number 51 or greater, or if total playing time exceeds 100 minutes, the total playing time turns to "–:–".*

To Start Over .....

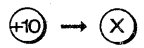


Press CLEAR, then PGM. Enter the new chapter numbers.

To Change an Entry .....

Press SEARCH to advance one entry. Enter the correct number.

To Enter a Number Greater Than 10 .....



Press +10 and one of the number keys, following the same procedure as on page 19.

To Cancel Programmed Play ...

Press CLEAR.
The player resumes normal playback.

To Replay the Programmed Chapters .....

Press REPEAT.
"REPEAT" is displayed on the screen.

To Advance or Go Back One Chapter* .....

Press ACS/AMS (I◄◄/►►I).

To Check the Contents of the Program .....

Press DISPLAY twice.
The flashing number indicates the chapter now playing.

* *The player does not go back to previous chapters if you hold down SCAN (◄◄), although, it does advance to forward chapters if you hold down SCAN (►►). To go back to preceding chapters press ACS /AMS (I◄◄).*

To Play a Compact Disc

This section explains how to perform procedures associated with playing CDs.

How to Load and Play a CD (Compact Disc)

After you have connected the Multi Disc Player to the stereo system, you can begin playing a compact disc. Locate the POWER, OPEN/CLOSE and PLAY buttons on the Remote Commander or the front panel of the player.

1 Turn on the multi disc player.

(Player)

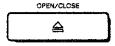
(Remote)

Press POWER on the player or Remote Commander (Remote).
You can also turn on the player by pressing OPEN/CLOSE (⏏) or ► on the player. When using the Remote Commander, press POWER.

2 Turn on the stereo system.

Turn on the amplifier or receiver and select CD, AUX or other desired audio input.

3 Open the disc tray.

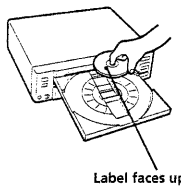


(Player)

(Remote)

Press OPEN/CLOSE (⏏).
The front cover of the player slides down and the disc tray comes out.

4 Place a disc on the tray.


Label faces up.

Carefully center a single CD on the tray.*
If you insert more than one disc, or the disc is not seated properly, it may not play or it may damage the player.

What is this indication?

NO DISC

This indication appears in the front panel display when the tray is empty.

5 Start playback.

(Player or Remote)

Press PLAY (►).**
The disc tray closes and the disc starts playing. You can also start playing by pressing the disc tray to close it.

To Advance or Reverse .....

(Player or Remote)

Hold down SCAN (◄◄ or ►►).

To Advance or Go Back One Track at a Time .....

(Remote)

Press ACS/AMS (I◄◄ or ►►I) on the Remote Commander.

To Interrupt Play .....

(Player or Remote)

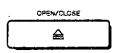
Press PAUSE (II).
To resume playback, press PAUSE (II) or PLAY (►).

To Stop Playback .....

(Player or Remote)

Press STOP (■).
To play again from the beginning, press PLAY (►).

To Stop Playback and Remove the Disc .....



(Player)

(Remote)

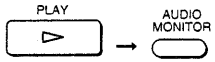
Press OPEN/CLOSE (⏏).
Remove the CD and press ⏏ again to close the empty tray.

To Have the Player Pause Before Starting .....

(Player or Remote)

Press PAUSE (II) after doing step 4 on page 26.
The tray closes and the player waits at the start of the disc until you press PLAY (►) or PAUSE (II).

To Play a Stereo CD or a Second Audio Program (SAP) CD .....



(Player or Remote) (Remote)

Press PLAY (►), then press AUDIO MONITOR on the Remote Commander.

The procedure below indicates how the output and the display change with each press.
The active tracks appears for three seconds on the TV screen. It always appears in the front panel display.
When you select 1/L (or 2/R), the sound of the left (or right) channel is output from both speakers.

Procedure	Screen message	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (►).	No message	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)
2 Press AUDIO MONITOR.	1/L	Left channel	Soundtrack 1 (left channel)
3 Press AUDIO MONITOR again.	2/R	Right channel	Soundtrack 2 (right channel)
4 Press AUDIO MONITOR again to return to stereo status.	1/L 2/R	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)

* *Do not use a CD stabilizer as it may cause damage to your disc or player.*
** *You can start playing by pressing (DISC) SIDE A instead of PLAY (►). If you press (DISC) SIDE B, the player stops.*

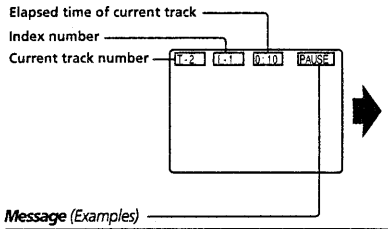
Understanding Displays and Messages When Playing CDs

You can determine the player operating status or disc information in one of two ways: (1) by displaying the information on the TV screen, or (2) by looking at the front panel display. Locate the DISPLAY button on the Remote Commander.

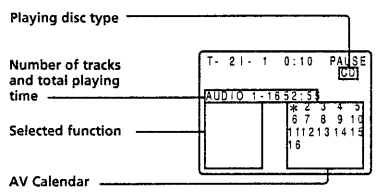
To View On-Screen Information .... DISPLAY

Turn on the television, and press DISPLAY on the Remote Commander. Each time you press DISPLAY, messages appear on the TV screen as shown below. The table is a key to the messages that appear on the right of the screen.

Press DISPLAY once.



Press DISPLAY twice.



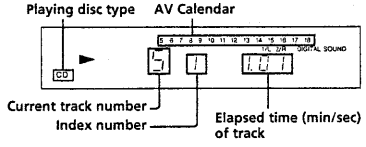
Message (Examples)

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CD
STOP	Operation stopped
PAUSE	Operation momentarily stopped
⏪ / ⏩	Speed Scanning
SEARCH	Searching

To turn off the display, press DISPLAY again.

Reading the Front Panel Display

The illustration to the right is an example of what is displayed on the front panel of the player.



Finding Out Play Status

When playing a CD, the AV Calendar shows information on the total number of tracks on the disc or those programmed to play. As tracks are played, the corresponding numbers in the calendar disappear. If the CD contains more than 20 tracks, ">" appears to the right of the calendar.

To Turn Off the Front Panel Display .....

Press FL DISPLAY on the Player. Each time you press FL DISPLAY, the display turns on/off.

How to Locate a Certain Track

CDs are divided into sections called "tracks". To scan a disc and find a certain point, use the SCAN buttons. To find and play from the beginning of a certain track, use the number keys. In addition, use the ACS/AMS buttons to advance or reverse one track at a time. Locate the SCAN buttons on the Remote Commander or player, the number keys and the ACS/AMS buttons on the Remote Commander.

To Scan Forward or in Reverse ..... SCAN ⏪ ⏩

Hold down SCAN (⏩) to scan forward.

Hold down SCAN (⏪) to scan in reverse.

To Resume Normal Playback .....

Release SCAN (⏪ or ⏩).

To Locate a Particular Track .... (Track Search) 8

Press one of the number keys on the Remote Commander to enter the track number you want to play.

To Enter a Number Greater Than 10 .....

Do this to make a numerical sum. For example, to enter 18, press +10 and 8; to enter 20, press +10, +10 and 0.

Press +10 and one of the number keys.

+10 → X

+10 → 8 ..... "18"

+10 → +10 → 0 ..... "20"

If you make a mistake while entering press CLEAR, then enter the correct number.

To Check the Current Track Number .....

See the front panel display (page 28).

To Advance or Go Back One Track at a Time ..... (Skip Search) ACS/AMS ⏮ ⏭

Press ACS/AMS (⏮) on the Remote Commander once to return to the beginning of the current track. Press it again before the selection starts to return to the beginning of the previous track.

Press ACS/AMS (⏭) once to advance to the beginning of the next track.

Hold down ACS/AMS (⏮ or ⏭) for continuous skip search.

To Play a Single Track Once

1 **Press 1/SIDE/ALL** on the Remote Commander. 1/SIDE /ALL

"1" is displayed on the front panel display.

2 **Enter the track number you want to play.** 8

When the track has been played, the player stops. To cancel the setting, press 1/SIDE/ALL again or CLEAR.
If you press the wrong number keys, simply press the correct ones.

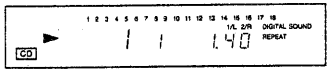
How to Replay the Same CD Selections

You can program the player to play the same selections over and over until you signal the repetition to stop. You can replay the entire disc, a single track, or a section between one pair of points on the disc.
Locate the REPEAT, 1/SIDE/ALL, and the REPEAT A↔B buttons on the Remote Commander.

To Repeat the Entire Disc.....

REPEAT

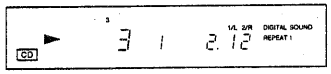
Press REPEAT on the Remote Commander.
"REPEAT" lights up in the front panel display. The player plays all tracks on the CD. When the player reaches the end of the disc, it plays again.



To Repeat the Current Track (Single Repeat).....

1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL, then REPEAT on the Remote Commander.
"REPEAT" and "1" light up in the front panel display. The current track repeats continuously.



To Cancel Repeat Play.....

REPEAT

Press REPEAT.*

To Cancel Single Repeat.....

1/SIDE /ALL → REPEAT

Press 1/SIDE/ALL and REPEAT.*

To Repeat One Section of the Disc (Repeat A↔B)

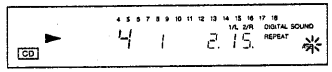
1 Go back to the start of the section you want to replay.

2 **Press REPEAT A↔B** on the Remote Commander to mark the beginning of the section.

REPEAT A-B

The "REPEAT" and "A–" ights up, and "B" indication begins flashing in the front panel display.

3 Let the player run to the end of the section you want to repeat.



4 **Press REPEAT A↔B** again to mark the end of the section.

REPEAT A-B

"REPEAT" and "A-B" light up in the front panel display.
The player repeatedly plays the selection between the two selected points.

To Cancel Repeat A↔B.....

CLEAR

Press CLEAR on the Remote Commander.

* *You can also cancel Repeat and Single Repeat by pressing CLEAR.*

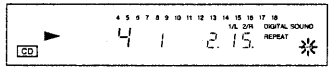
To Replay From a Specific Point on the Disc (Memory Search)

1 Go to the point from where you want to start playback.

2 **Press REPEAT A↔B** to mark the starting point.

REPEAT A-B

The "REPEAT" and "A–" lights up, and "B" indication begins flashing in the front panel display.



3 **Press CLEAR** to turn off the indication "A–B REPEAT". (Thus not setting an end point.)

CLEAR

4 **Press SEARCH** on the Remote Commander at any point you like on the disc.

SEARCH

The player goes to the point you marked and starts playing.*

How to Search by Elapsed Playing Time—Time Search

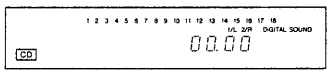
You can locate a particular point on a CD by specifying the elapsed playing time from the beginning of the disc.
Locate the FRAME/TIME, SEARCH and number keys on the Remote Commander.

To Enter the Elapsed Playing Time

1 **Press FRAME/TIME** on the Remote Commander.

FRAME/ TIME

"00.00" appears in the front panel display.



2 **Enter the desired multi-digit number** corresponding to the time you want to find.**

Enter four digits.

(1) → (2) → (0) → (5)

Sample Entry for CDs
To locate the 12-minute, 5-second point, press the number keys in the order on the right:

If you press the wrong key, press FRAME/ TIME to clear the number, then enter the correct number.

3 **Press SEARCH** on the Remote Commander.

SEARCH

Play starts from the time specified in step 2. In addition to normal play mode, you can conduct Time Search while in Repeat or Pause mode. When the specified time appears after the search, play continues in the same mode.

To Cancel Time Search.....

CLEAR

Press CLEAR on the Remote Commander before pressing SEARCH.

* *The point marked "A" from where you can resume playback is cleared if you open the disc tray, turn off the player, or carry out a Time Search.*
** *If you enter a time number not contained on the disc, play stops.*

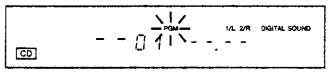
How to Play Only Certain Tracks—Programmed Play

You can program, in any order you like, the tracks the Multi Disc Player plays. This play list is stored in the player until you either remove the disc or turn off the power. You can program up to 25 tracks. After playing all the selections, the player stops and waits for your next command. Locate the number keys, PGM, and PLAY buttons on the Remote Commander.

1 Press PGM on the Remote Commander.

PGM

"PGM" flashes in the front panel display.

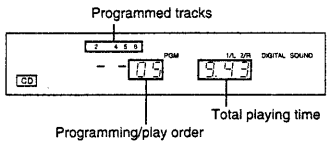


2 Press one of the number keys.

5 ...

Press numbers for all the tracks you want to play. For example, press 5, 4, 6 and 2 to play those tracks.

The total playing time of the programmed tracks is displayed on the front panel display.



3 Press PLAY (►).

PLAY

To Start Over ..... CLEAR → PGM — **Press CLEAR and PGM.** Then, enter the correct track numbers.

To Change an Entry ..... SEARCH — **Press SEARCH** to advance one entry. Enter the new number.

To Enter a Number Greater Than 10 ..... +10 → X — **Press +10 and one of the number keys** following the same procedure as on page 29.

To Program a Pause ..... PAUSE — **Press PAUSE (II)** at the point you want the program to stop playing. A pause is counted as a selection.

To Cancel Programmed Play ... CLEAR — **Press CLEAR.** The player resumes normal playback.

To Replay the Same Programmed Tracks ..... REPEAT — **Press REPEAT.** "REPEAT" is displayed in the front panel dispaly.

To Advance or Go Back One Track** ..... ACS/AMS — **Press ACS/AMS (I◄◄/►►I).** The player moves to the preceding or following programmed tracks.

To Check the Contents of the Program (TV screen) ..... DISPLAY — **Press DISPLAY twice.** The programmed track numbers are displayed on the TV screen. The flashing number indicates the current track.

* *If you enter chapter number 51 or greater, or if total playing time exceeds 100 minutes, the total playing time turns to "–.–.–".*
** *The player does not go back to previous tracks if you hold down SCAN (◄◄), however, it does advance to forward tracks if you hold down SCAN (►►). To go back to preceding tracks, press the ACS/AMS (I◄◄) button repeatedly.*

To Play a Compact Disc Video

This section explains basic procedures for playing CDVs and VSDs. Since CDV and VSD play holds so many functions in common with CD and LD play, see other sections of this manual for details of applicable functions mentioned here.

How to Load and Play a CDV (Compact Disc Video) or VSD (Video Single Disc)

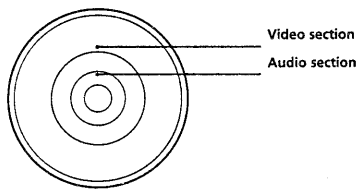
CDVs are divided into two sections: video and audio. The video section of the disc consists of 5 minutes of video play with digital audio output. The audio section consists of 20 minutes of solely digital audio output (playable on any CD player). Thus, the CDV has the function of both an LD and CD combined in one disc. The audio and the video sections of the CDV are assigned track numbers. The track on the video section corresponds to the chapter on the LD and the same on the CD. You can regard VSDs as CDVs that have no audio tracks.

1 Turn on the TV, stereo system (if connected), and Multi Disc Player.

2 Place the disc on the tray.

3 Press PLAY (►).

Play begins from the video section.
To start play from the audio section, using the number keys, enter the track number that starts the audio section.



To Stop and Remove the Disc ..... OPEN/CLOSE — OPEN/CLOSE

To Advance or Go Back One Track at a Time ..... ACS/AMS — I◄◄ ►►I (Remote)

To Interrupt Play ..... PAUSE — II

To Find a Certain Audio or Video Track ..... X (Remote)

To Play Certain Video Tracks ..... PLAY — ►

To Repeat the Current Track ..... 1/SIDE /ALL → REPEAT (Remote)

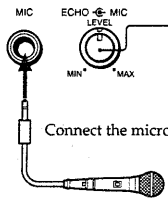
To Repeat All Selections ..... REPEAT (Remote)

To Repeat a Section of the Disc ..... REPEAT A-B (Remote)

To Use Variable Speed Scan (Audio and Video) ..... SCAN — ◄◄ ►►

To Play Karaoke

1 Connect the microphone.

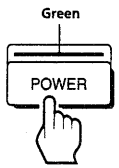


When connecting the microphone, turn the MIC LEVEL control (the inner knob) to MIN.

Connect the microphone plug to the MIC jack.

Microphone (not supplied)

2 Turn on the player.

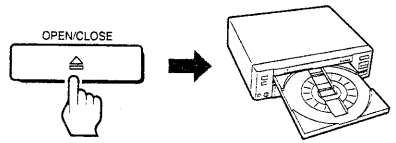


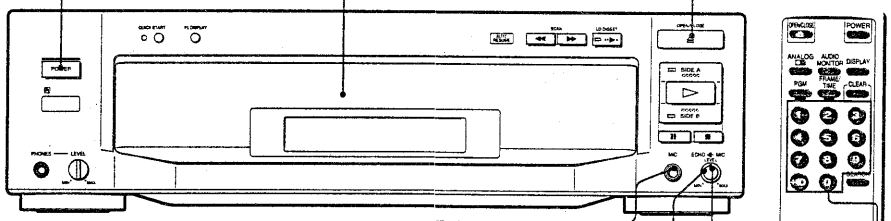
3 Turn on the TV and stereo system.

TV:
Set to "Video".

Stereo system:
Turn on the amplifier or receiver and select CD or AUX for audio output.

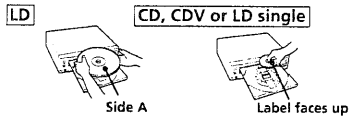
4 Open the disc tray.





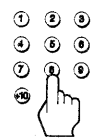
5 Place a disc on the tray.

Carefully center a single disc on the tray. The disc will not play if it is not seated properly.



Always insert one disc at a time. Inserting more than one may damage the player.

6 Choose a selection to play.



Press one of the number keys on the Remote Commander. The disc tray closes automatically and the selection starts playing. If you enter the wrong number, simply reenter the correct one.

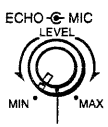
- Press PLAY (►) or push in the disc tray to play from the beginning of the disc (side A of the LD).
- To choose a selection on side B of the LD, press (DISC) SIDE B, then press the number key(s).

7 Adjust the microphone volume.

MIC LEVEL control

Adjust the microphone volume with the MIC LEVEL control (the inner knob).
Sound from a microphone cannot be output when the player is connected to the amplifier with a Fiber Optical Cable. To output sound from a microphone, use an Audio Cable (Red & White plugs) for connection.

8 Adjust the microphone echo.



ECHO LEVEL control

Adjust the strength of the echo with the ECHO LEVEL control (the outer knob).

Useful Functions for Karaoke Entertainment

Using AUDIO MONITOR and ANALOG/□ (page 15)
Karaoke discs can be recorded using one of three formats: multi audio (MULTI AUDIO), multiplex and stereo. Multi audio and multiplex discs include vocals. Stereo discs do not. If the disc loaded in the player is a multi audio or multiplex disc, you can play Karaoke listening to the voice recorded on the disc by alternating the sound using AUDIO MONITOR or ANALOG/□ on the Remote Commander.

Programmed Play (page 24)
You can choose the selections in any order you like and play them continuously for non-stop Karaoke entertainment.

If howling occurs
Correct by doing the following:
- Move the microphone away from the speakers
- Lower the MIC or ECHO LEVEL
- Lower the volume of the speakers

When listening through headphones
Once the headphones are connected, the volume must be adjusted with the LEVEL control beside the PHONES jack.

Note about disc sides
The player determines that the upper side of the disc is side "A," and the other side is "B," regardless of label "A" or "B" printed on the disc.

If the output is distorted
The output may sound distorted when listening through your TV speakers. Correct this by setting the ATT (Attenuator) switch on the rear panel of the player to ON. (This will lower the volume which should now be adjusted with the volume control on the TV.

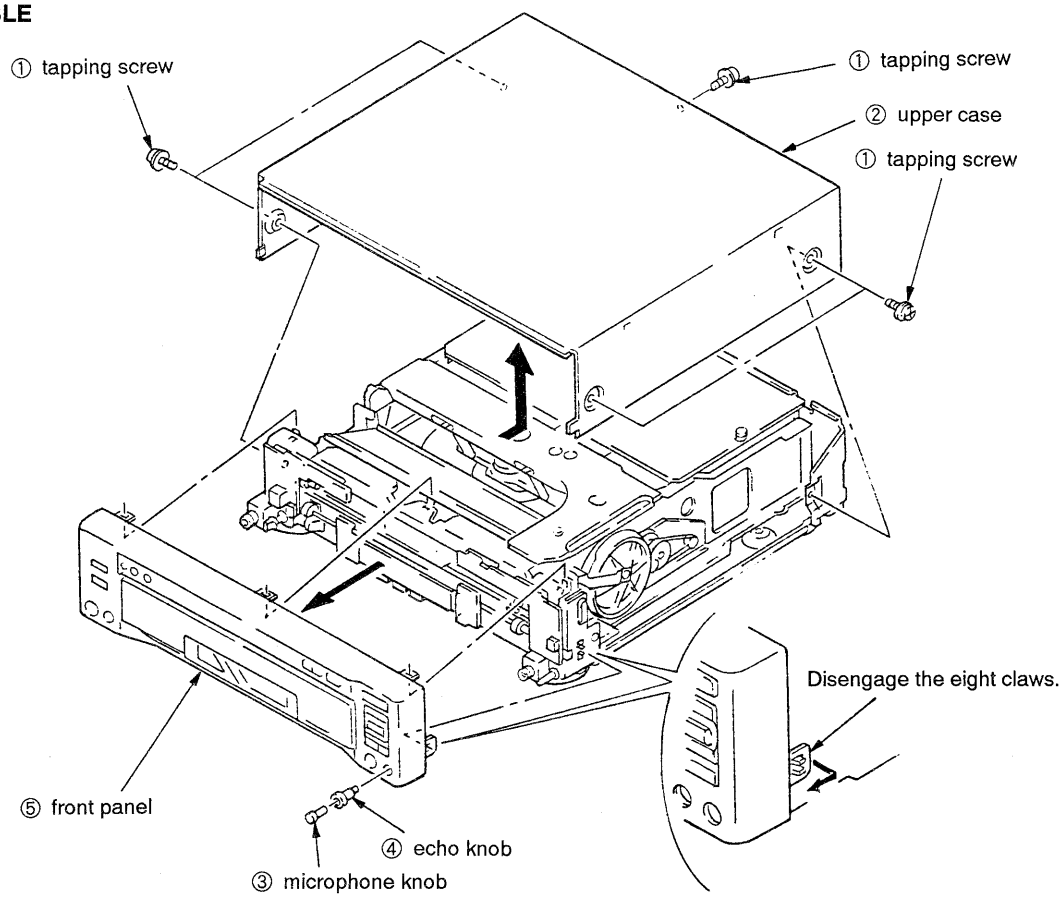
If the picture on the TV flickers
The picture appearing on the TV screen may flicker when listening through your TV speakers and the MIC volume is set too high. Correct this by setting the ATT (Attenuator) switch on the rear panel to ON, or lower the MIC LEVEL.

SECTION 2
DISASSEMBLY

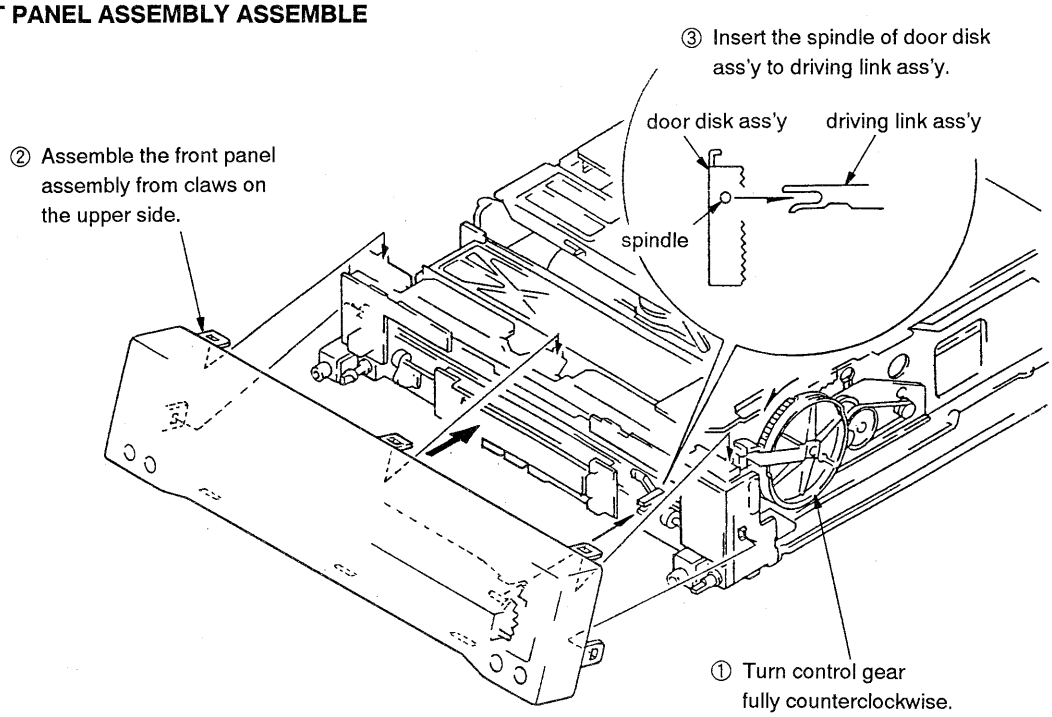
NOTE : Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE, FRONT PANEL ASSEMBLY

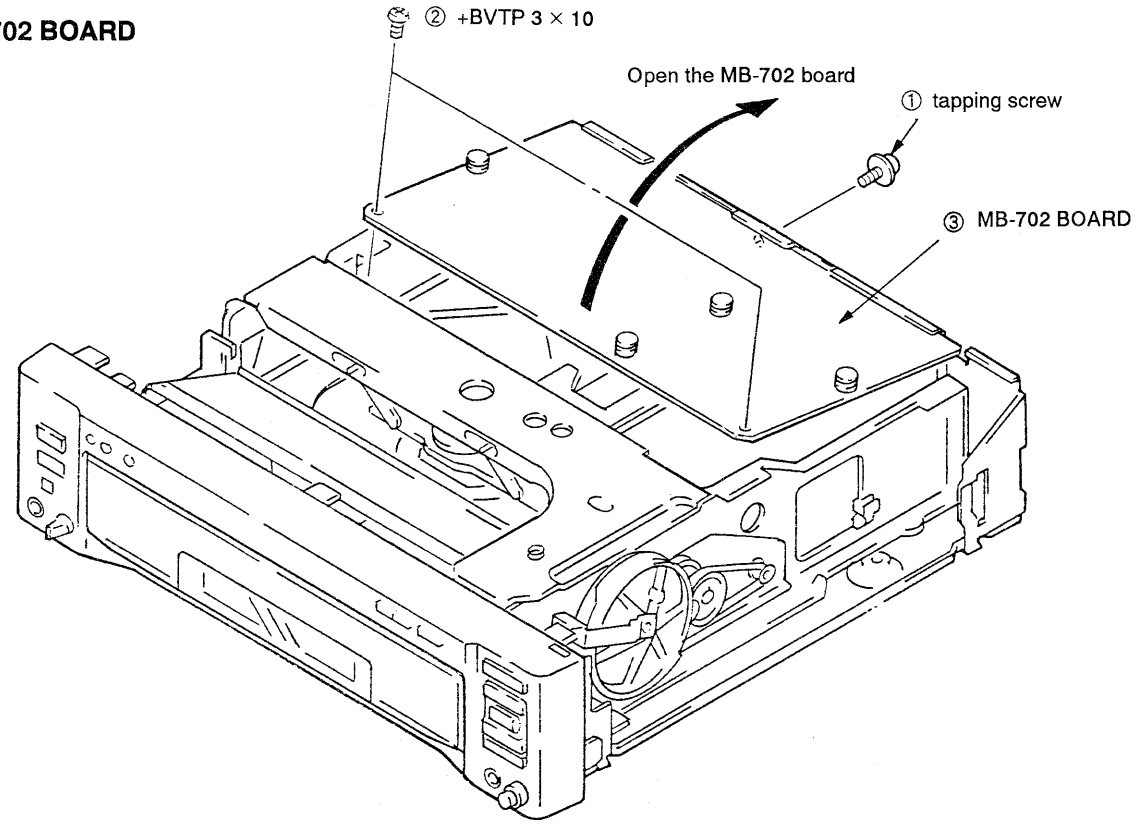
• DISASSEMBLE



• FRONT PANEL ASSEMBLY ASSEMBLE

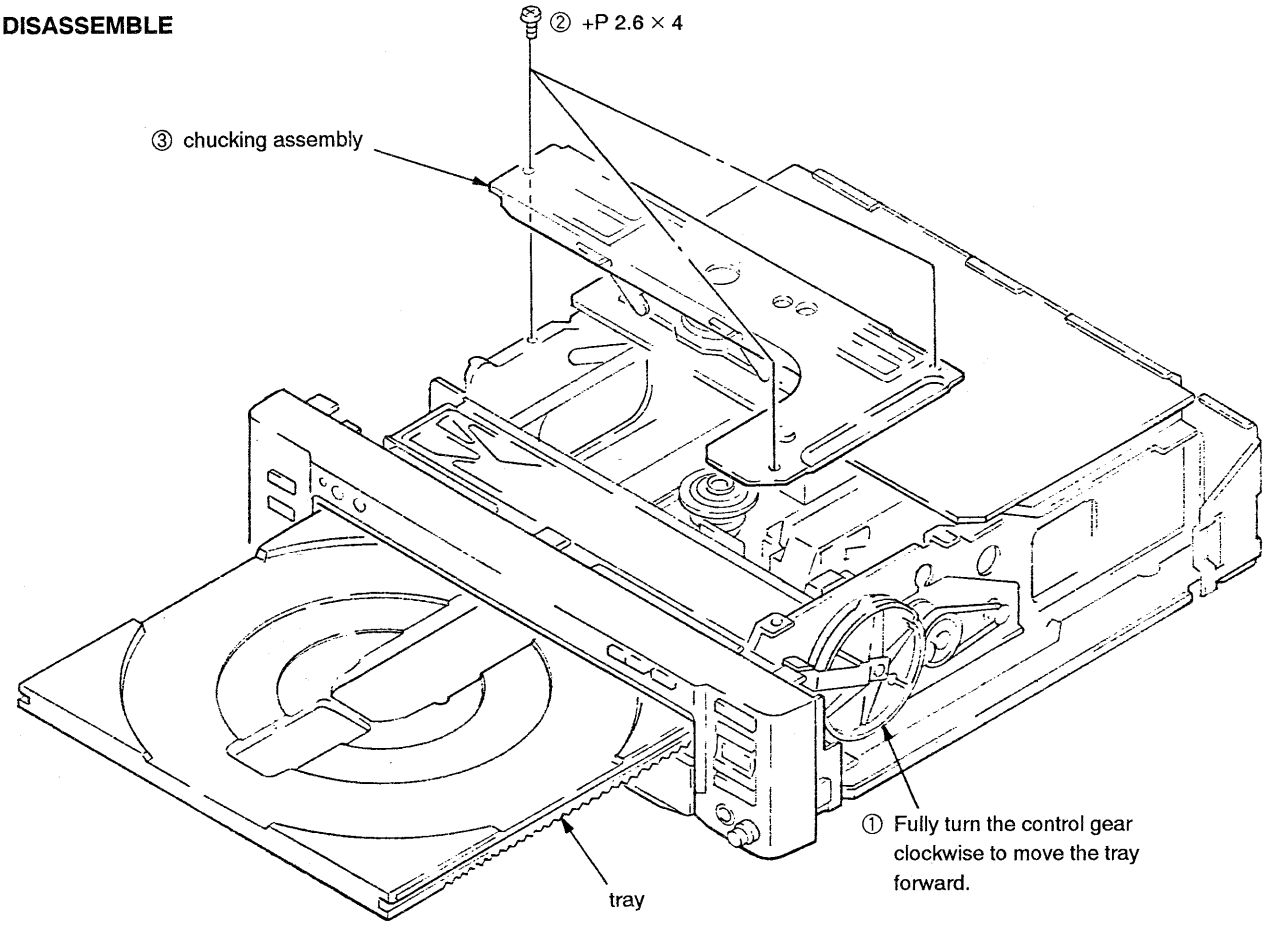

③ Insert the spindle of door disk ass'y to driving link ass'y.
door disk ass'y
driving link ass'y
② Assemble the front panel assembly from claws on the upper side.
spindle
① Turn control gear fully counterclockwise.

2-2. MB-702 BOARD

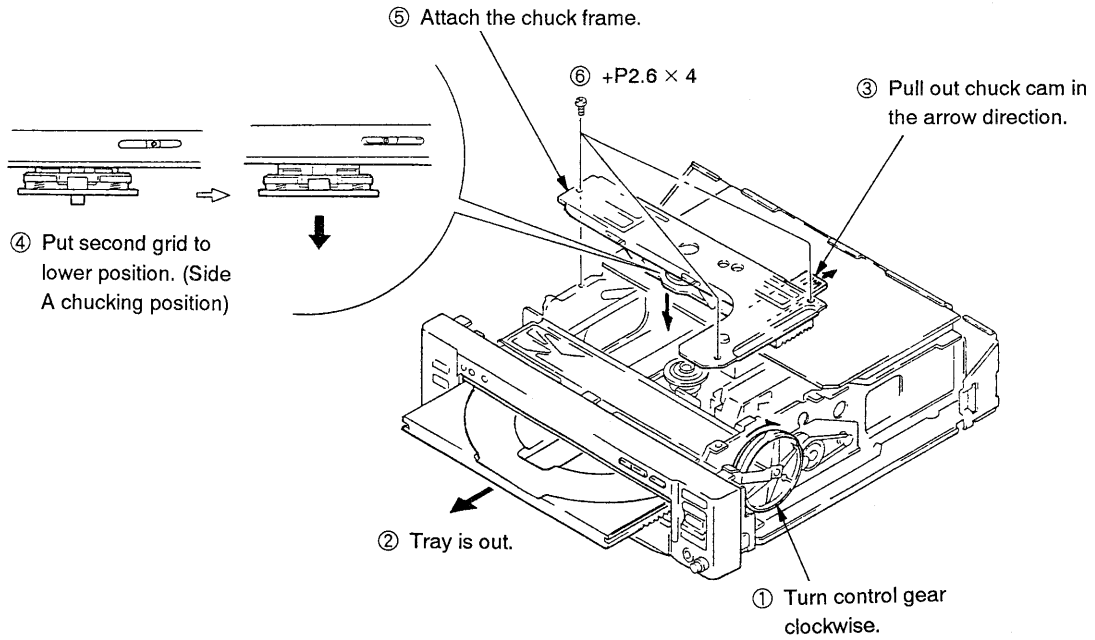


2-3. CHUCKING ASSEMBLY

• **DISASSEMBLE**

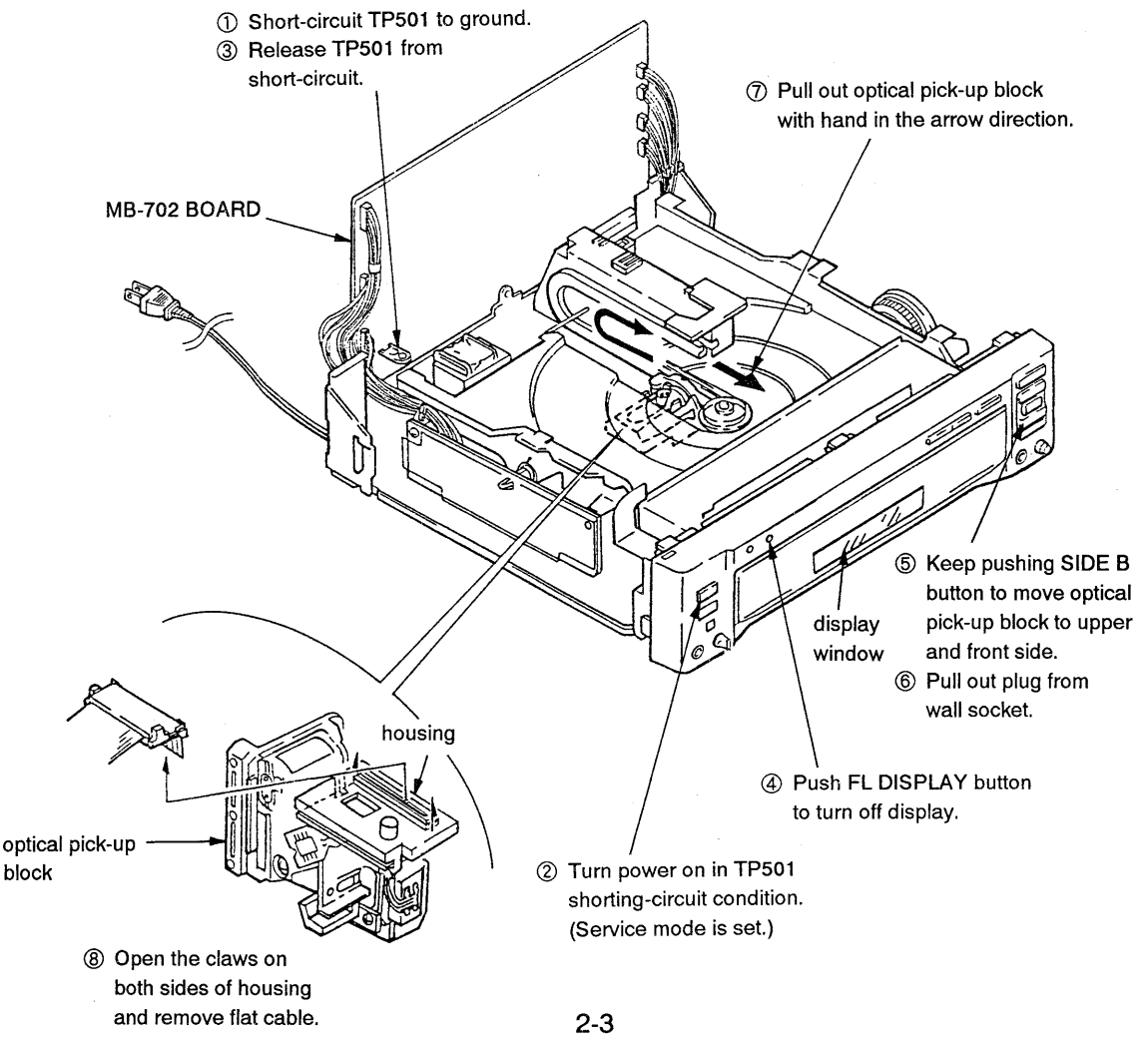


• **ASSEMBLE**

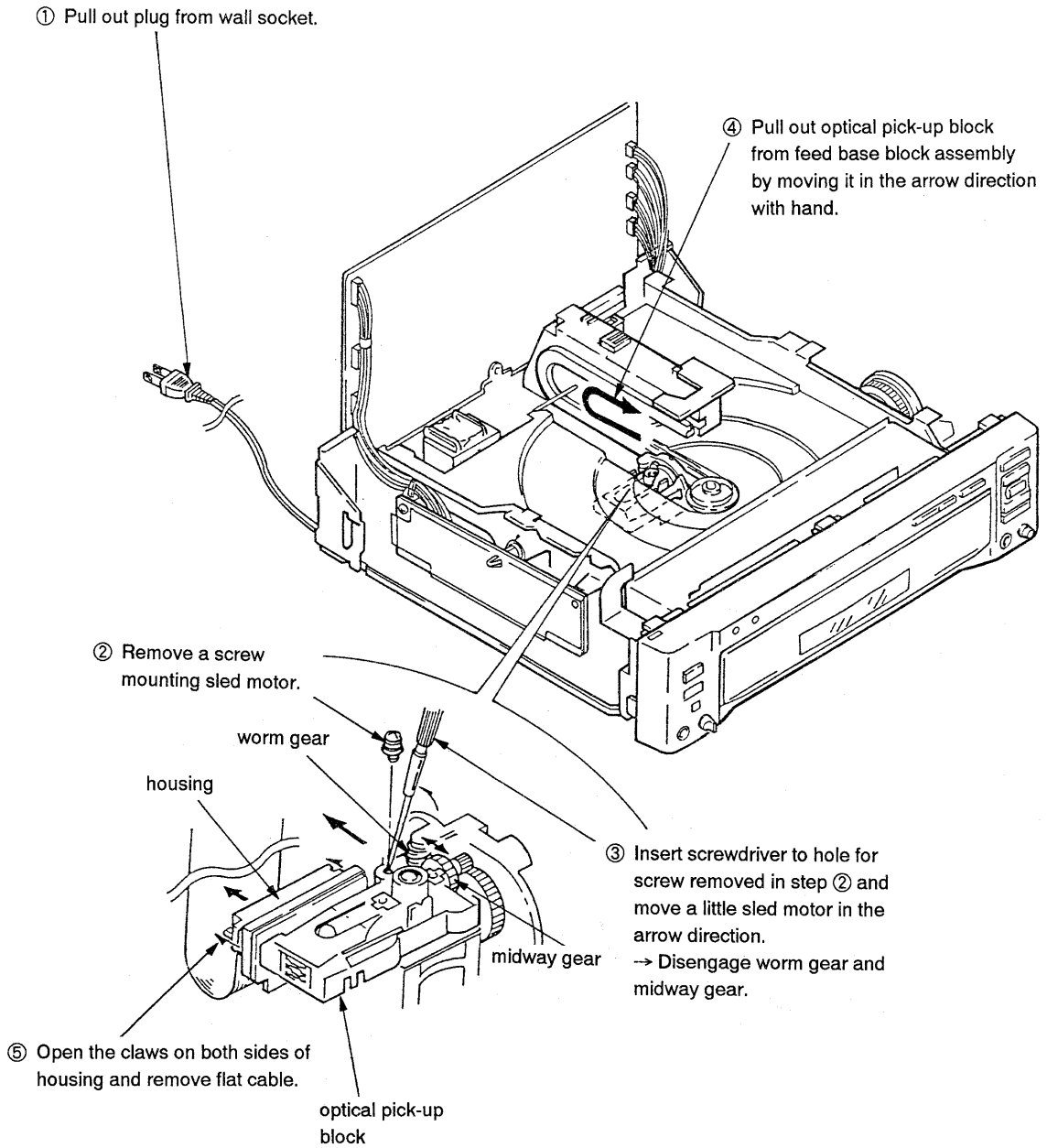

⑤ Attach the chuck frame.
⑥ +P2.6 × 4
③ Pull out chuck cam in the arrow direction.
④ Put second grid to lower position. (Side A chucking position)
② Tray is out.
① Turn control gear clockwise.

2-4. OPTICAL PICK-UP BLOCK

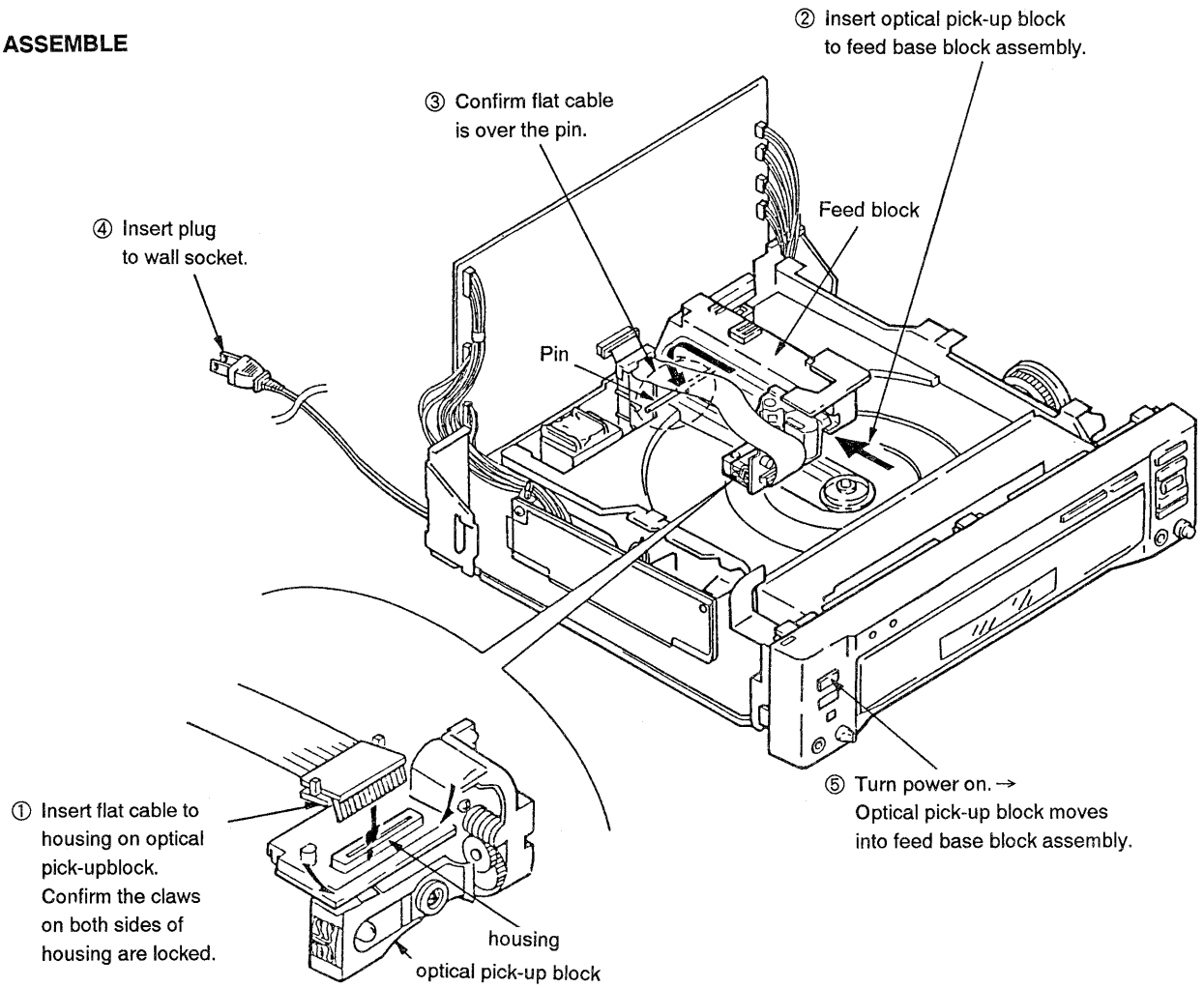
• **DISASSEMBLE** I
(OPTICAL PICK-UP BLOCK MOTOR OPERATES)


① Short-circuit TP501 to ground.
③ Release TP501 from short-circuit.
⑦ Pull out optical pick-up block with hand in the arrow direction.
MB-702 BOARD
⑤ Keep pushing SIDE B button to move optical pick-up block to upper and front side.
display window
⑥ Pull out plug from wall socket.
housing
④ Push FL DISPLAY button to turn off display.
optical pick-up block
② Turn power on in TP501 shorting-circuit condition. (Service mode is set.)
⑧ Open the claws on both sides of housing and remove flat cable.

• DISASSEMBLE II
(OPTICAL PICK-UP BLOCK MOTOR DOESN'T OPERATE)

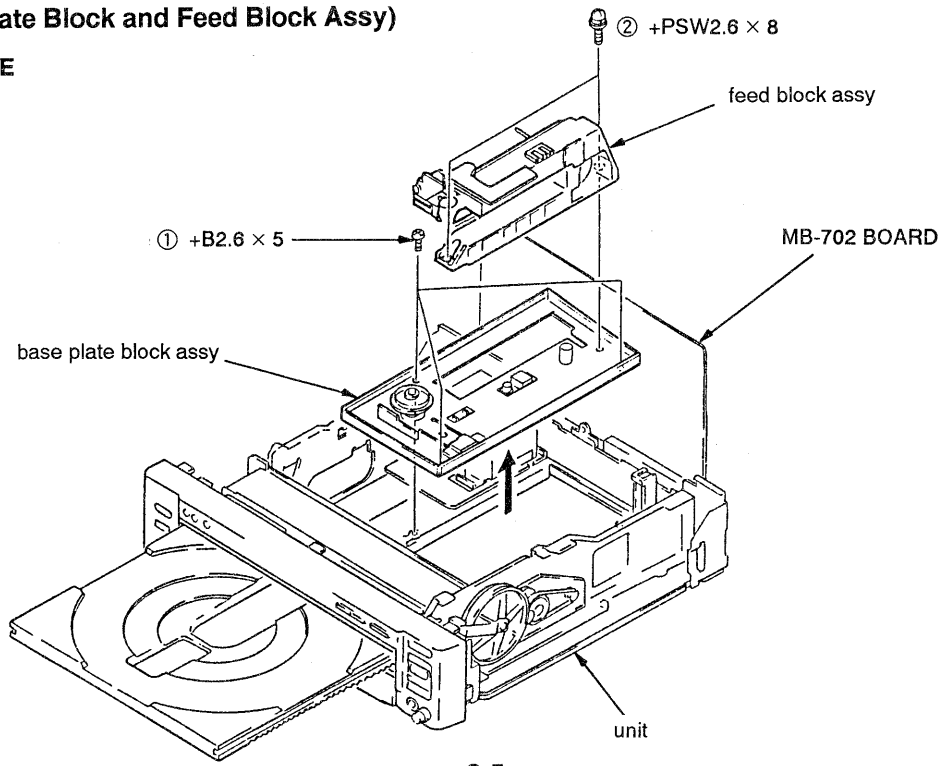

① Pull out plug from wall socket.
④ Pull out optical pick-up block from feed base block assembly by moving it in the arrow direction with hand.
② Remove a screw mounting sled motor.
worm gear
housing
③ Insert screwdriver to hole for screw removed in step ② and move a little sled motor in the arrow direction.
→ Disengage worm gear and midway gear.
midway gear
⑤ Open the claws on both sides of housing and remove flat cable.
optical pick-up block

• **ASSEMBLE**

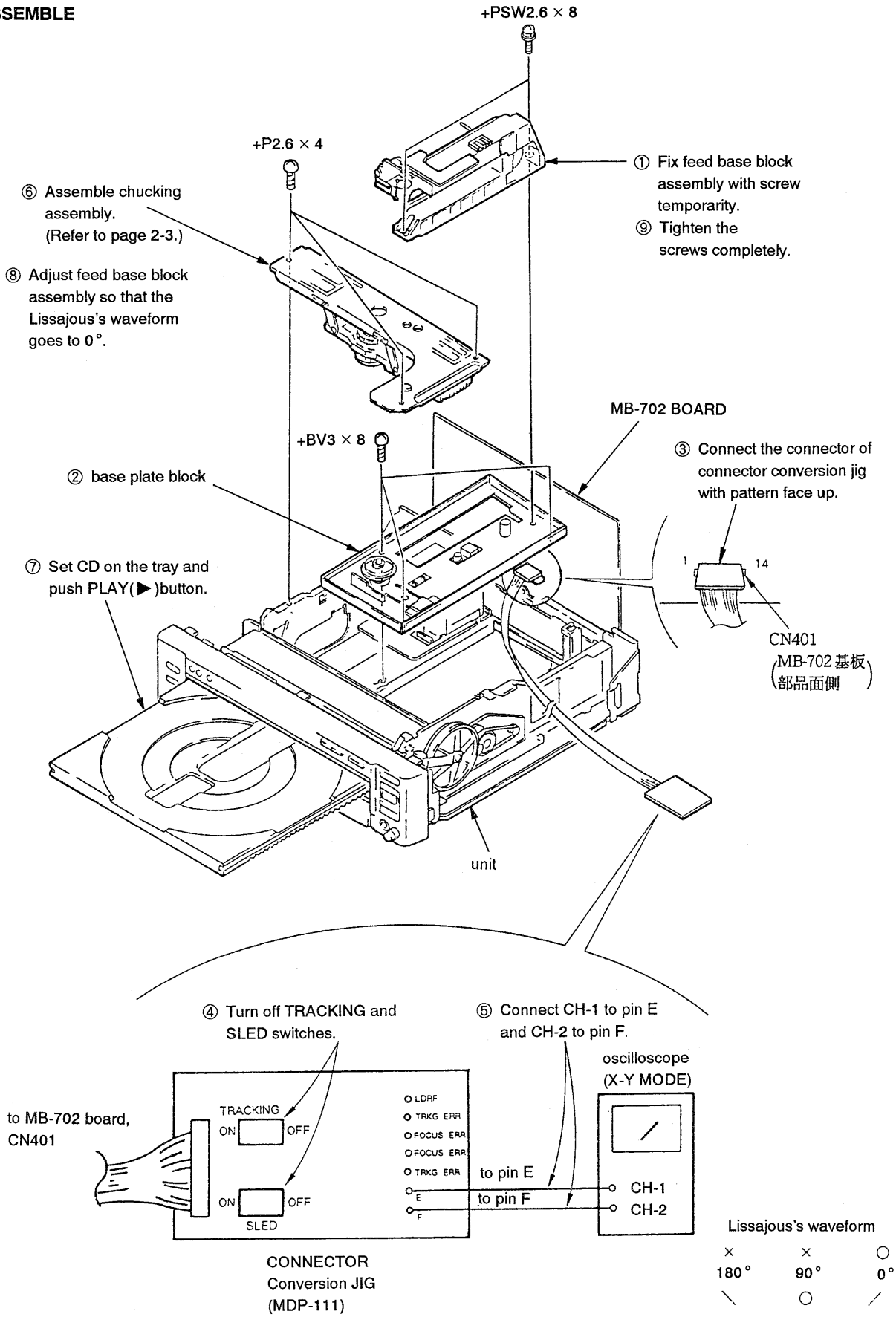

② Insert optical pick-up block to feed base block assembly.
③ Confirm flat cable is over the pin.
④ Insert plug to wall socket.
Feed block
Pin
⑤ Turn power on. →
Optical pick-up block moves into feed base block assembly.
① Insert flat cable to housing on optical pick-upblock. Confirm the claws on both sides of housing are locked.
housing
optical pick-up block

2-5. MD CHASSIS ASSEMBLY (Base Plate Block and Feed Block Assy)

• **DISASSEMBLE**

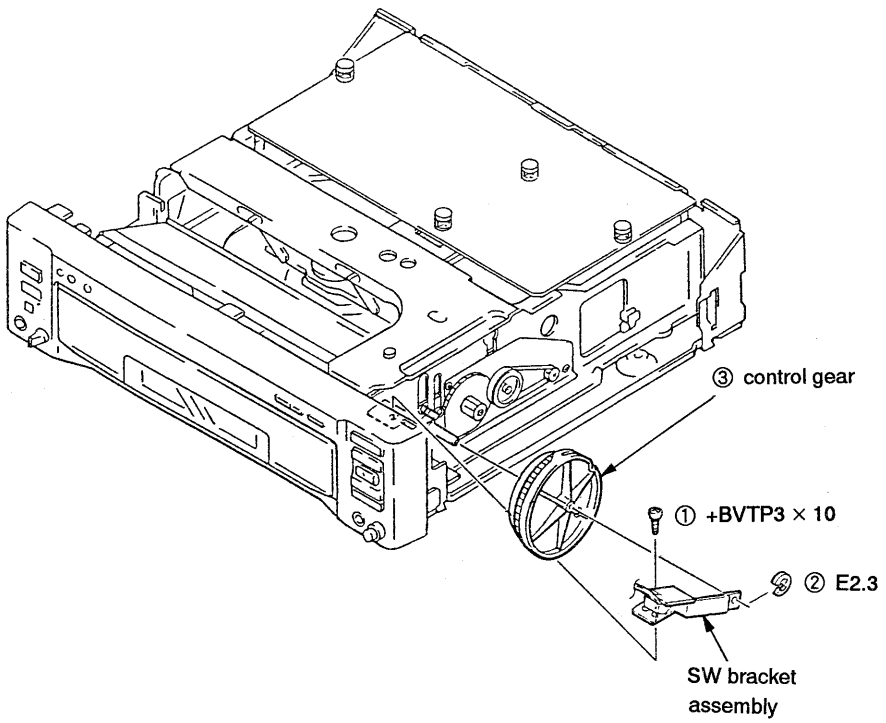


• ASSEMBLE

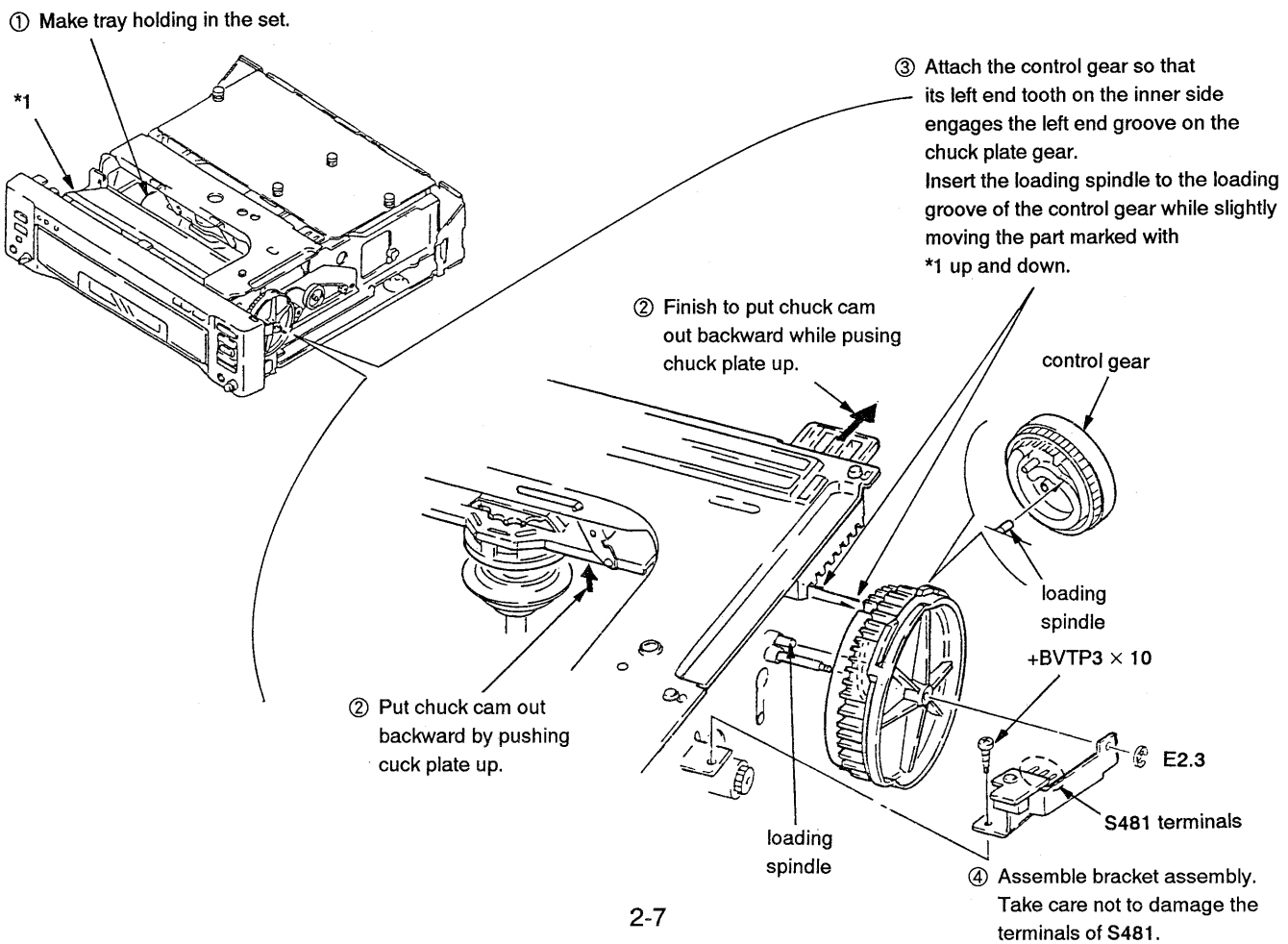

+PSW2.6 × 8
+P2.6 × 4
① Fix feed base block assembly with screw temporarity.
⑨ Tighten the screws completely.
⑥ Assemble chucking assembly. (Refer to page 2-3.)
⑧ Adjust feed base block assembly so that the Lissajous's waveform goes to 0 °.
MB-702 BOARD
+BV3 × 8
③ Connect the connector of connector conversion jig with pattern face up.
② base plate block
⑦ Set CD on the tray and push PLAY(▶)button.
1
14
CN401
(MB-702 基板 部品面側)
unit
④ Turn off TRACKING and SLED switches.
⑤ Connect CH-1 to pin E and CH-2 to pin F.
oscilloscope (X-Y MODE)
to MB-702 board, CN401
TRACKING
ON
OFF
SLED
LDRF
TRKG ERR
FOCUS ERR
FOCUS ERR
TRKG ERR
E
F
to pin E
to pin F
CH-1
CH-2
CONNECTOR
Conversion JIG
(MDP-111)
Lissajous's waveform
180 °
90 °
0 °

2-6. CONTROL GEAR

• **DISASSEMBLE**

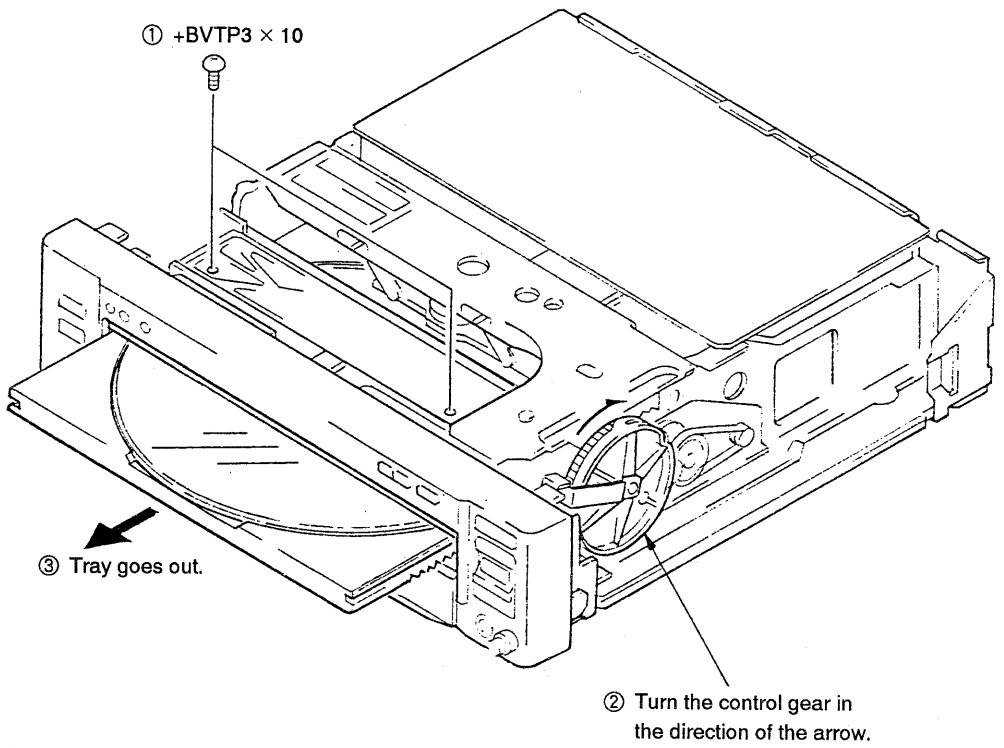


• **ASSEMBLE**

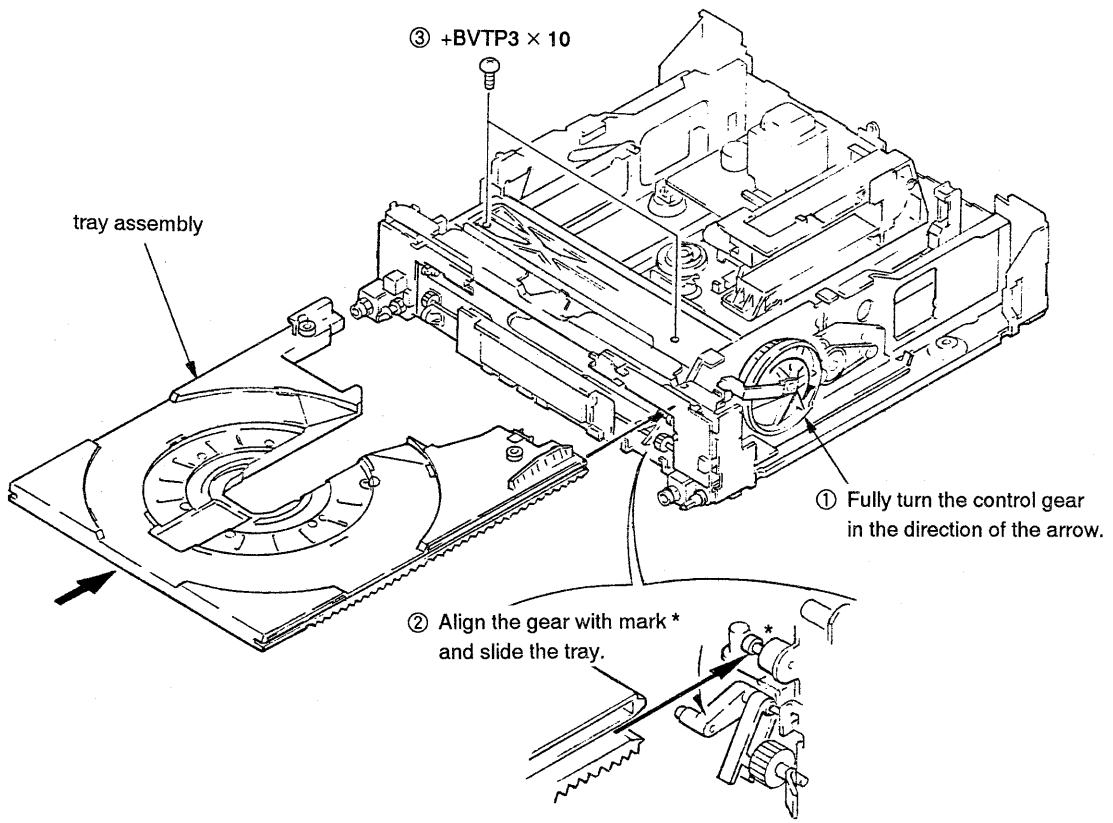

① Make tray holding in the set.
*1
③ Attach the control gear so that its left end tooth on the inner side engages the left end groove on the chuck plate gear.
Insert the loading spindle to the loading groove of the control gear while slightly moving the part marked with *1 up and down.
② Finish to put chuck cam out backward while pusing chuck plate up.
control gear
loading spindle
+BVTP3 × 10
E2.3
S481 terminals
② Put chuck cam out backward by pushing cuck plate up.
loading spindle
④ Assemble bracket assembly. Take care not to damage the terminals of S481.

2-7. TRAY ASSEMBLY

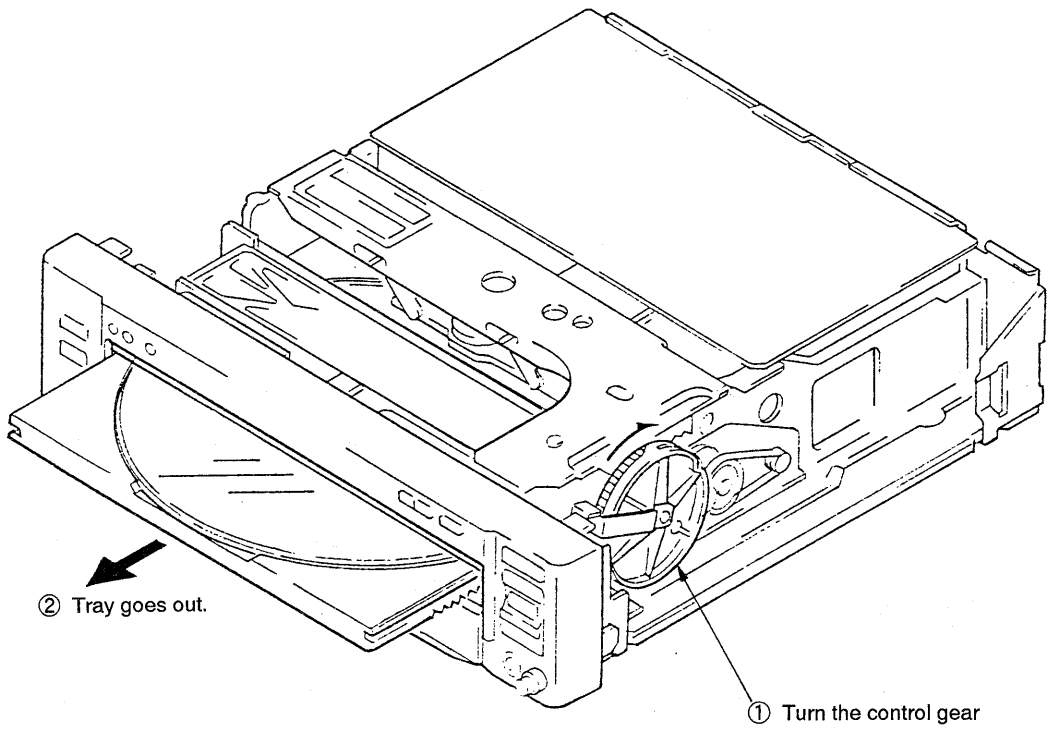
• **DISASSEMBLE**



• **ASSEMBLE**

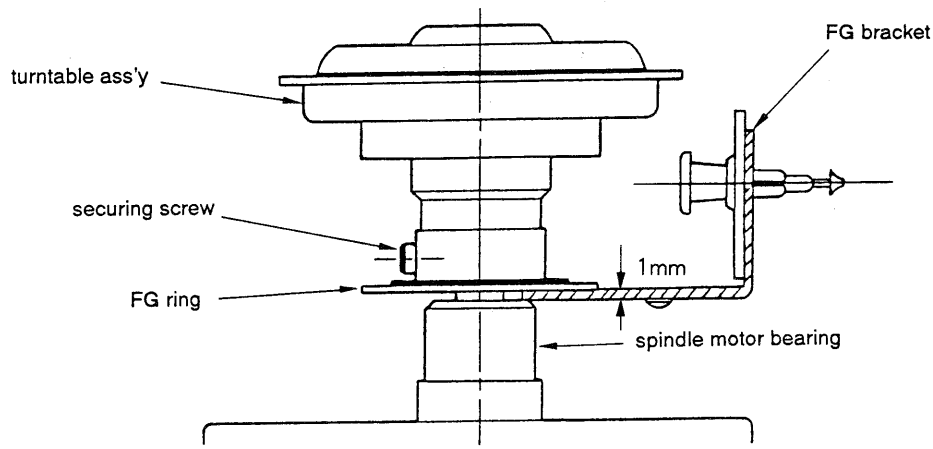

③ +BVTP3 × 10
tray assembly
① Fully turn the control gear
in the direction of the arrow.
② Align the gear with mark *
and slide the tray.

2-8. PUTTING OUT DISC WHEN A TROUBLE HAS OCURRED WITH THE DISC LOADED



2-9. TURNTABLE ASSEMBLY HEIGHT ADJUSTMENT

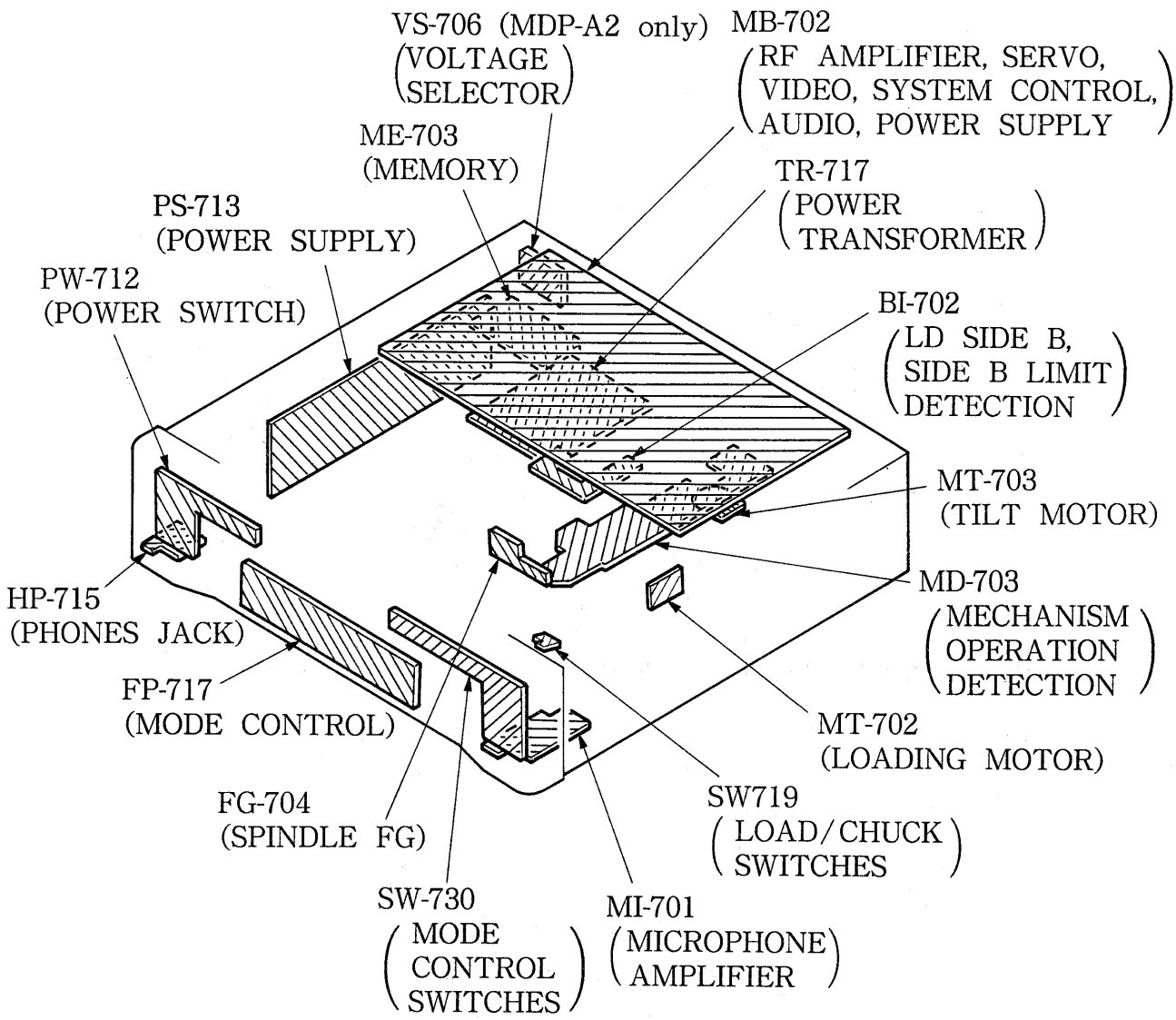
1. Open the tray by turning the control gear recured on the right side of the set clockwise.
2. Remove chucking assembly. (Refer to page 2-2.)
3. Remove FG bracket with FG board.
4. Replace turntable assembly.
   Adjust turntable assembly height using FG bracket(1 mm thickness)as followings.



Insert FG bracket between spindle motor bearing and FG ring to set height and tighten securing screw.

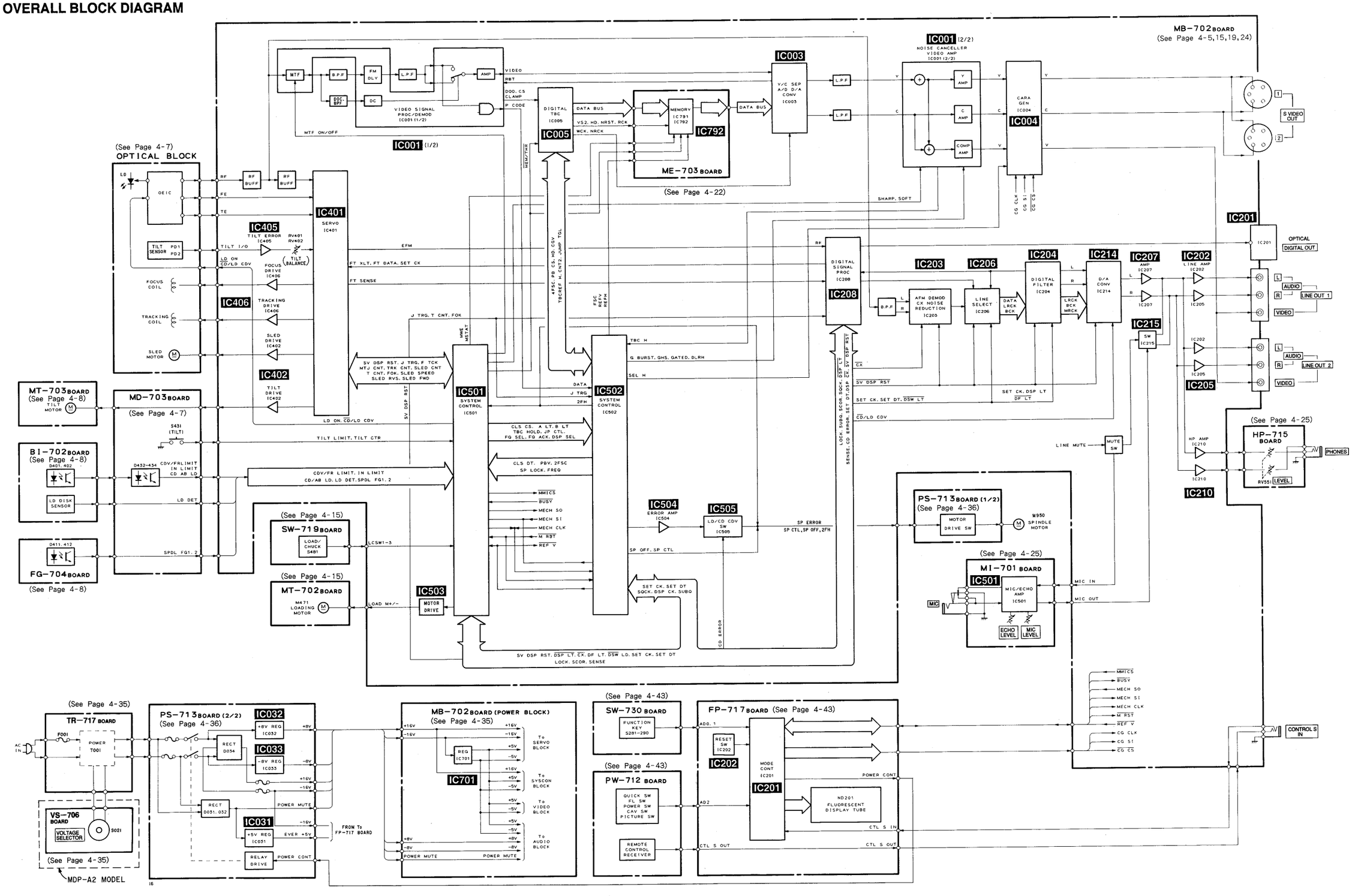
5. Fit FG bracket with FG board in its original position.

2-10. CIRCUIT BOARDS LOCATION

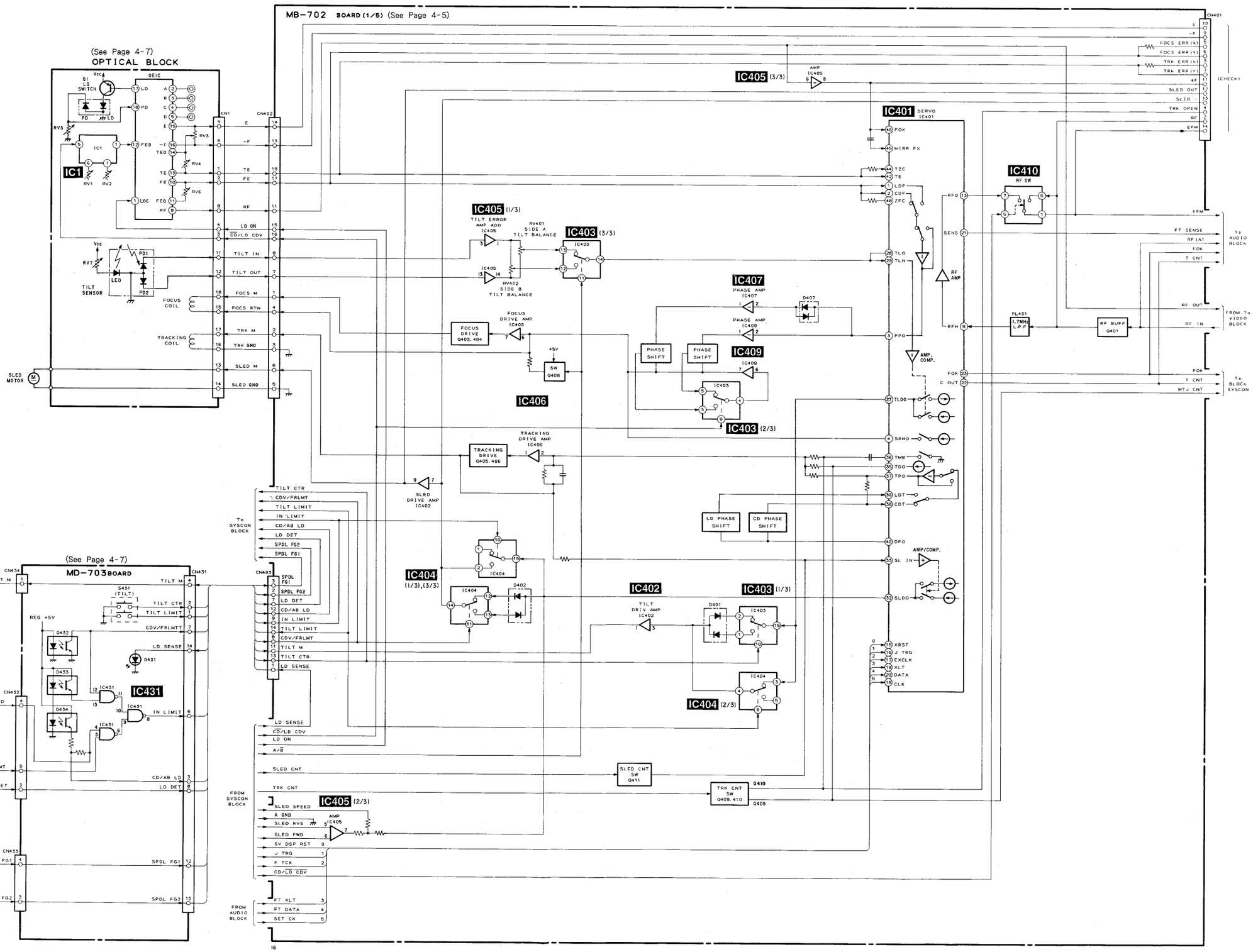


SECTION 3
BLOCK DIAGRAMS

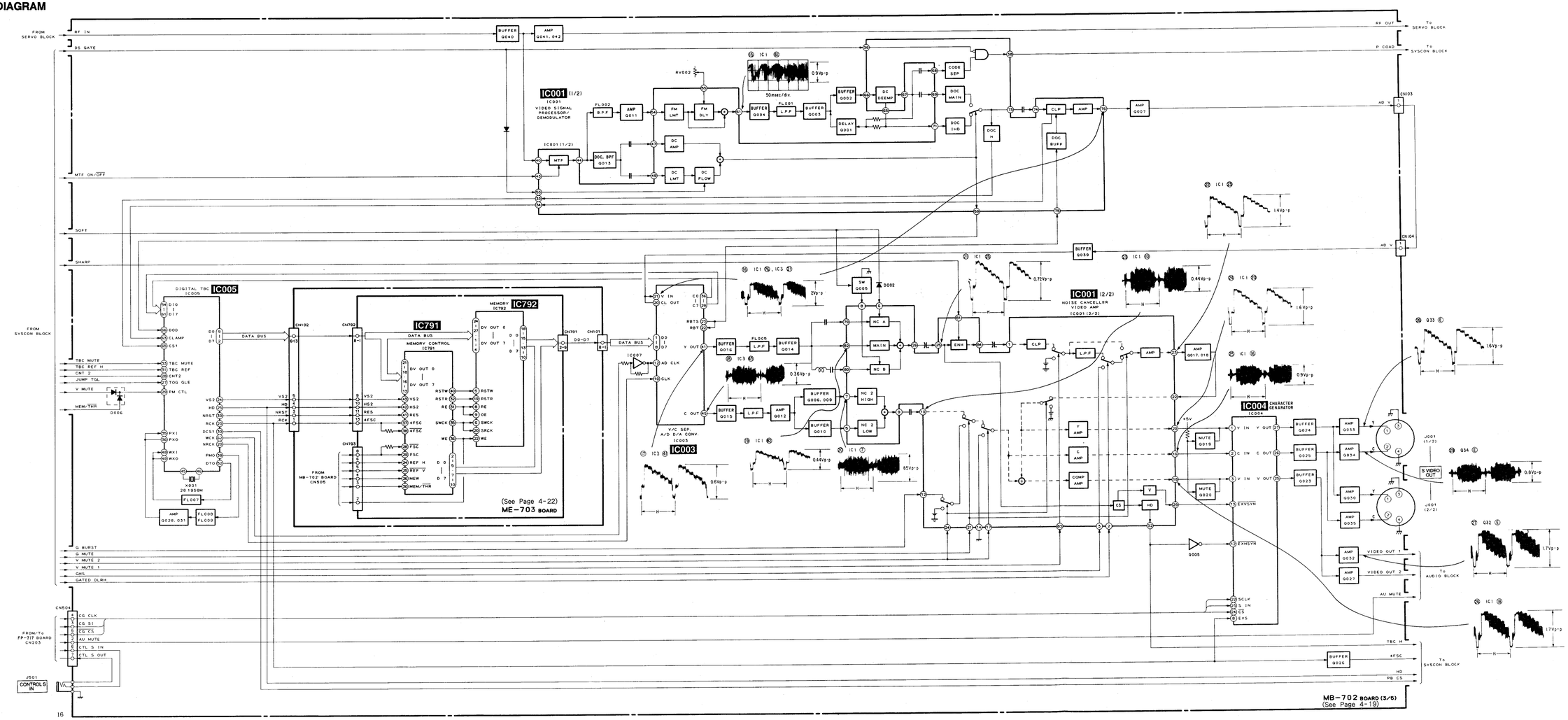
3-1. OVERALL BLOCK DIAGRAM



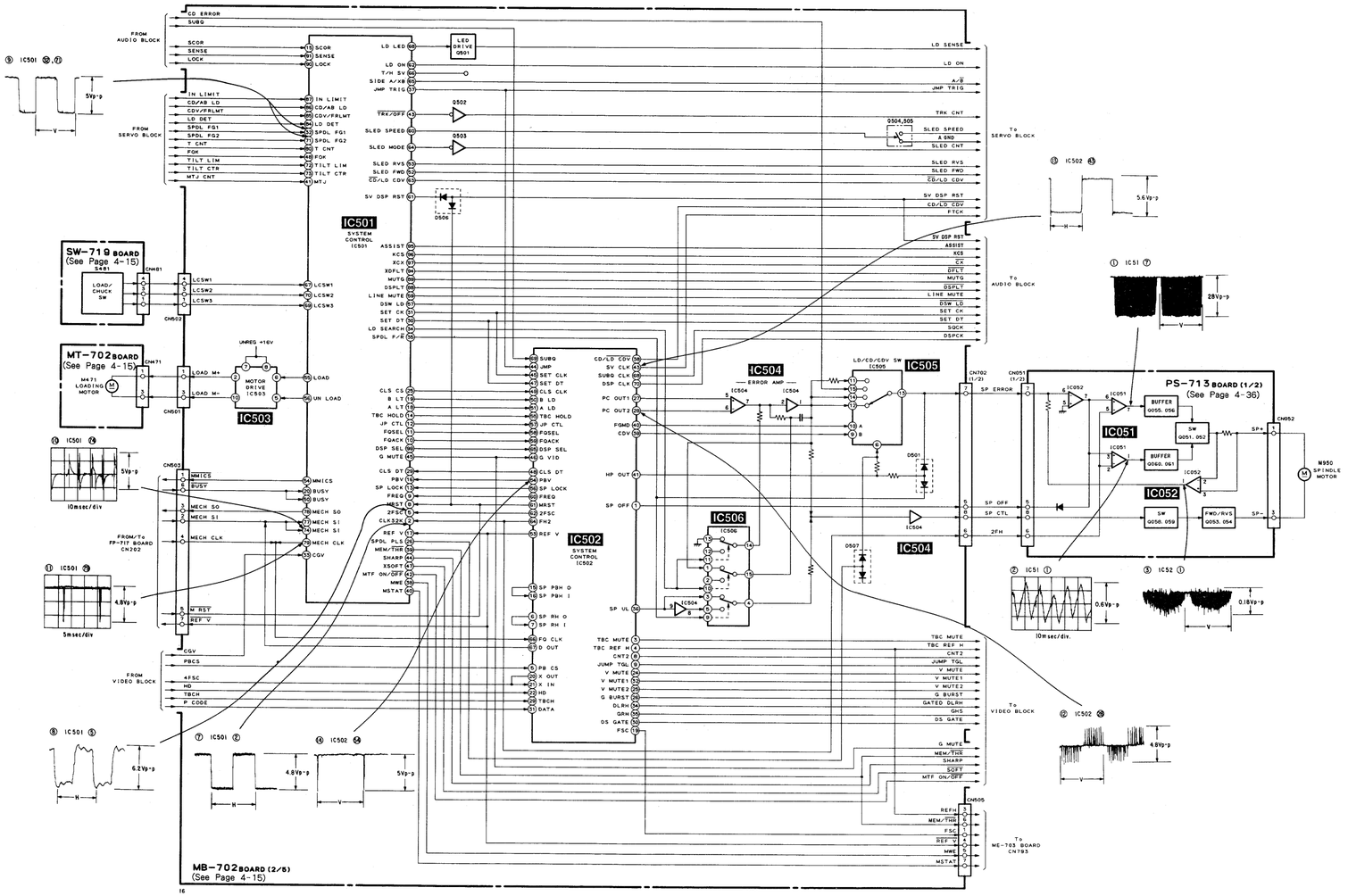
3-2. SERVO BLOCK DIAGRAM



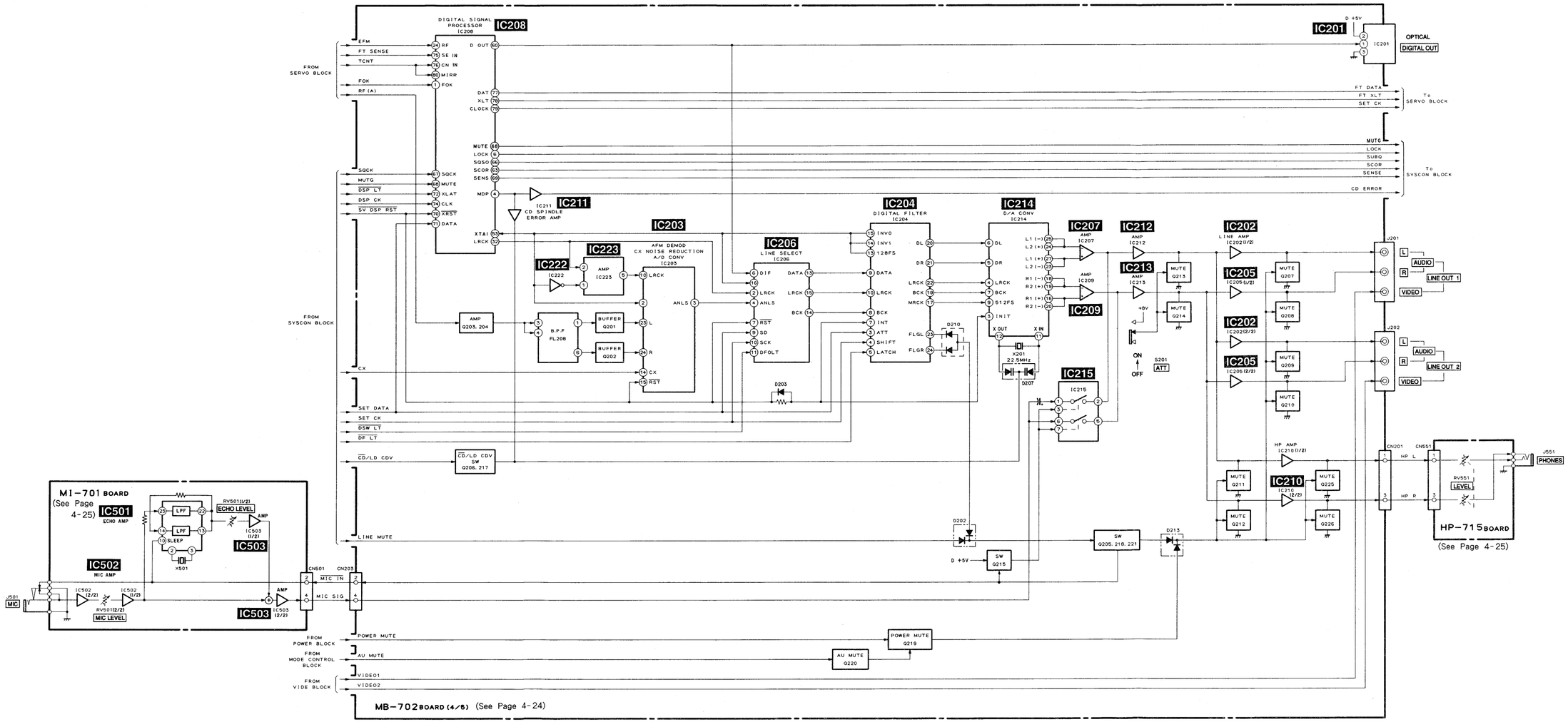
3-3. VIDEO BLOCK DIAGRAM



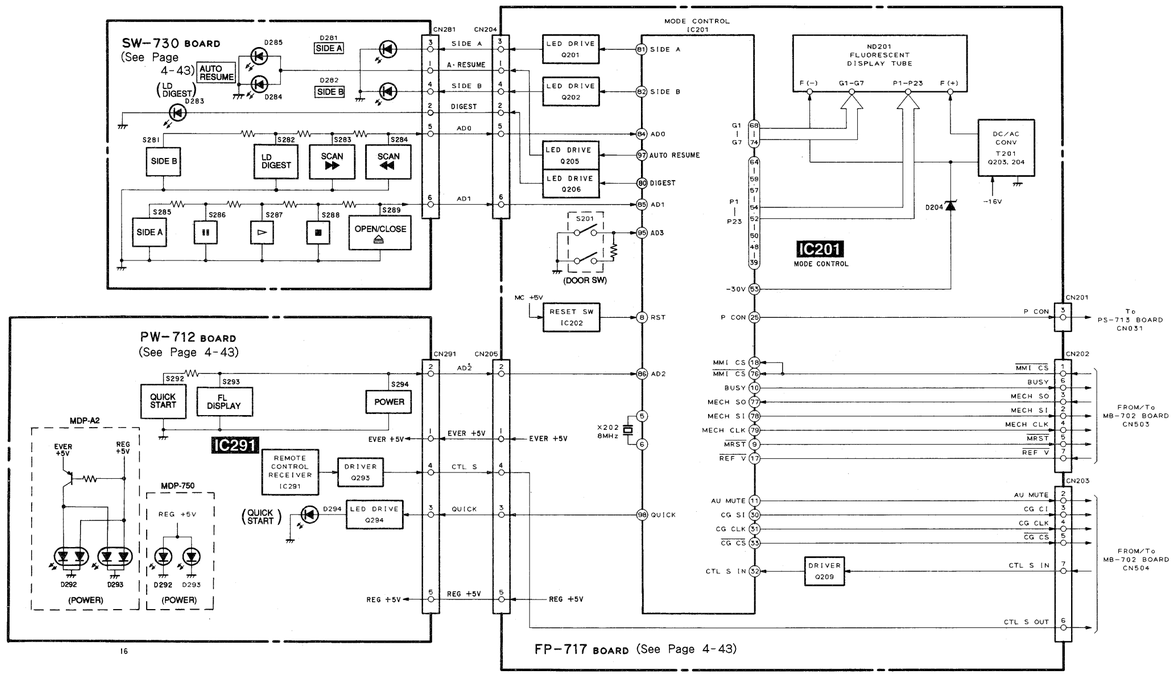
3-4. SYSTEM CONTROL BLOCK DIAGRAM



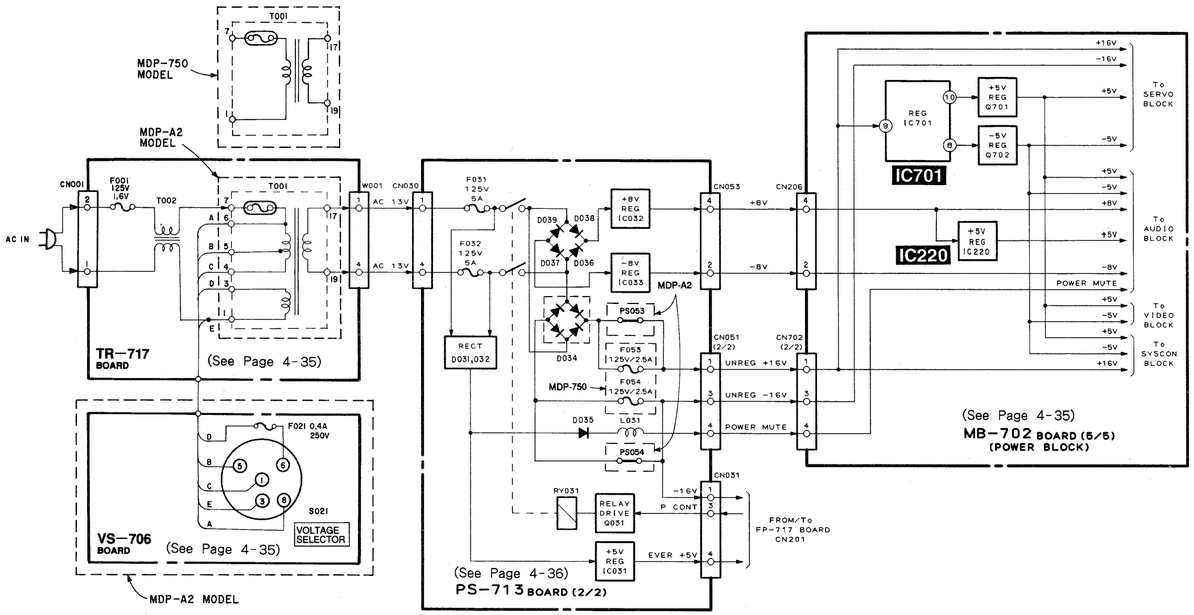
3-5. AUDIO BLOCK DIAGRAM



3-6. MODE CONTROL BLOCK DIAGRAM



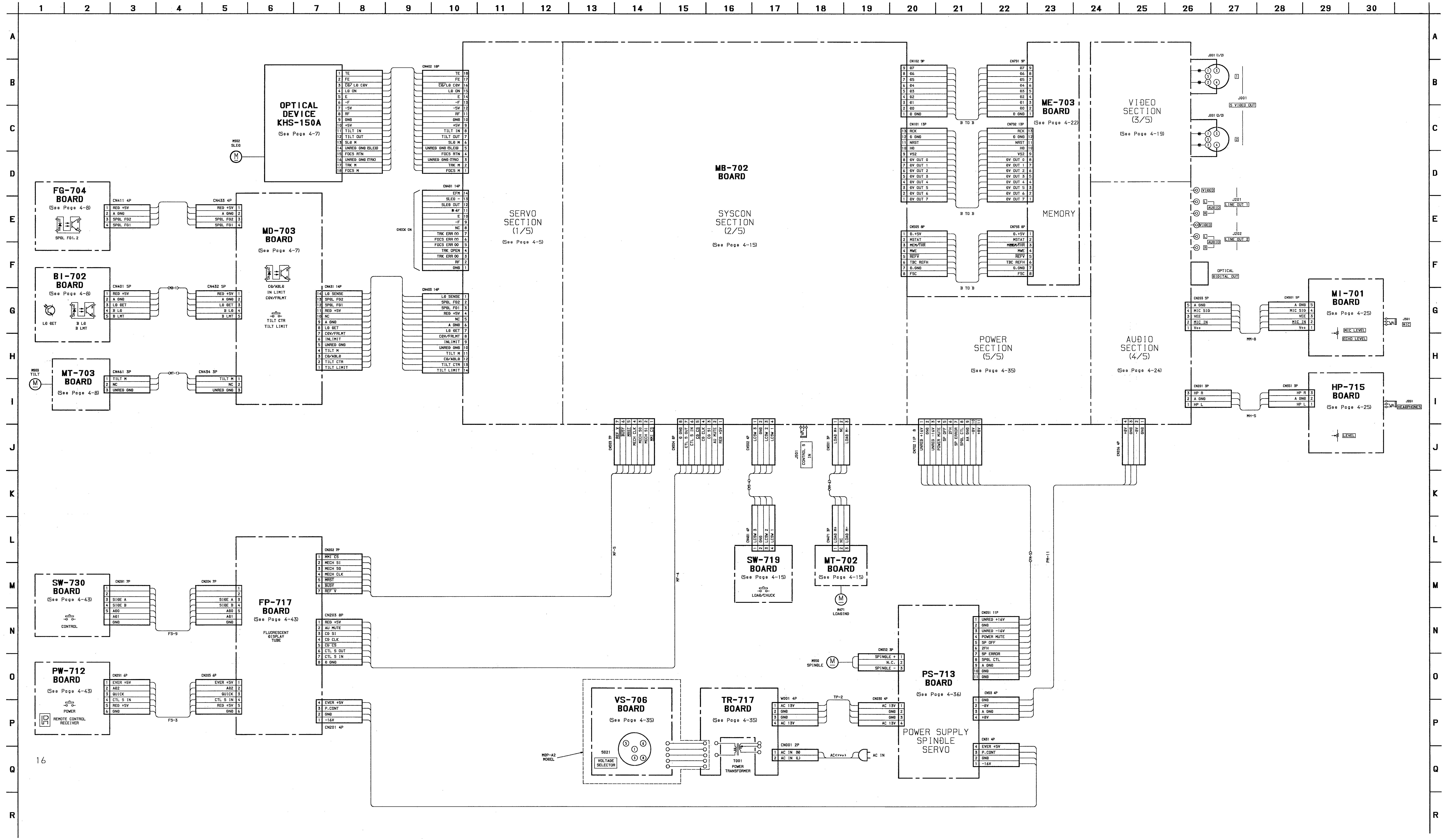
3-7. POWER SUPPLY BLOCK DIAGRAM



SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:
- ○—— : indicated a lead wire mounted on the component side.
- ● : Through hole is omitted.
- ▒▒ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

Caution :	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

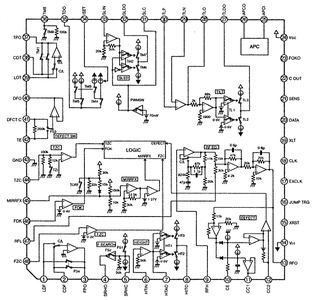
For schematic diagram:
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4 W unless otherwise noted.
  Chip resistors: 1/10 W unless otherwise noted.
  kΩ : 1000 Ω , MΩ : 1000k Ω .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.*
- ▬▬ : B + Line.*
- ▬ ▬ ▬ : B − Line.*
- Voltages are dc between measurement points and ground unless other wise noted.*
- Readings are taken with a color- bar signal playback.
- Readings are taken with a digital multimeter (DC10 MΩ).*
- Voltage are taken with a VOM (input impedance 10 MΩ).*
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : IN/OUT direction of B line (+, −).*
- Circled numbers refer to waveforms.*

When indicating parts by reference number, please include the board name.

Note:	Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

- * : indicated by the color red.

• IC401 CXA1632Q (MB-702 Board)



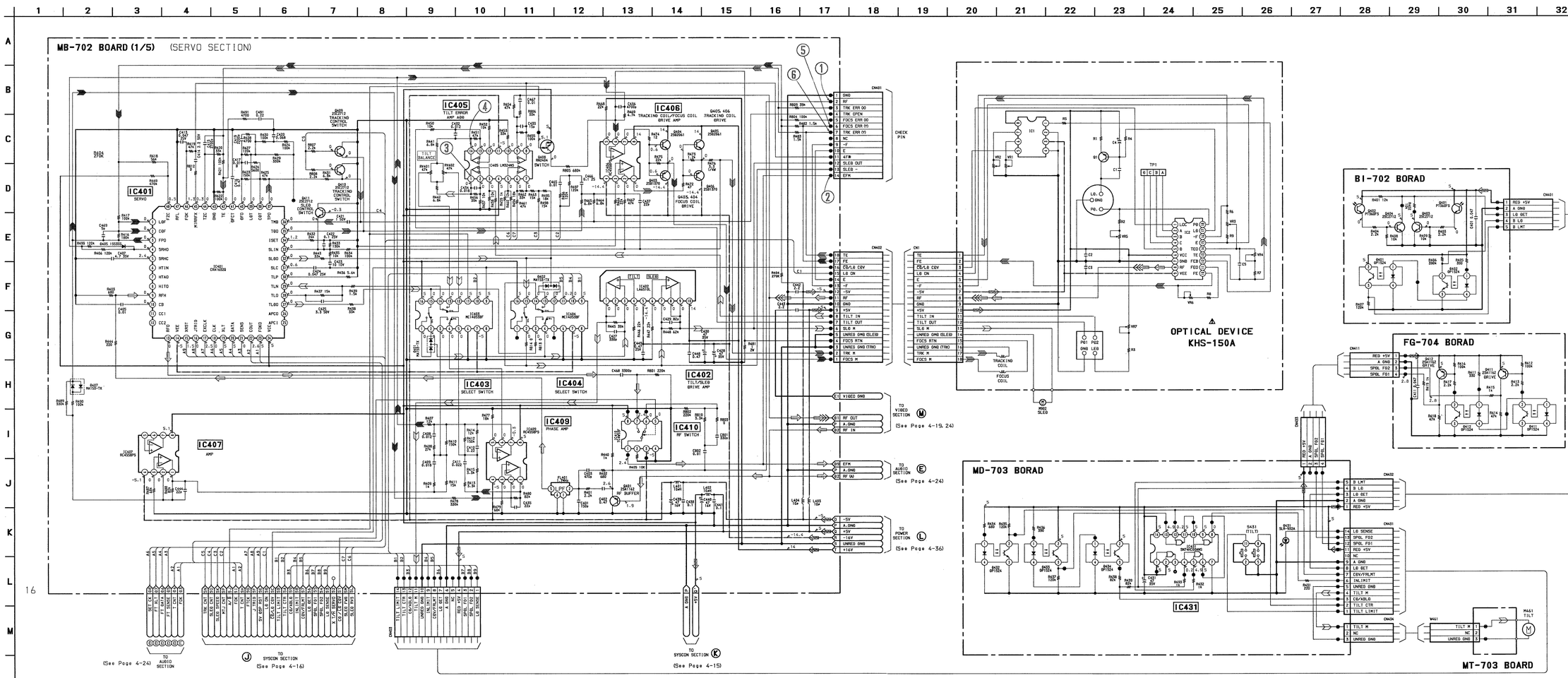
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB			⇨	⇨

Spindle phase servo	
Spindle servo (Speed and phase)	
Tracking servo	⇨
Sled servo	⇨
Focus servo	⇨
Skew servo	⇨

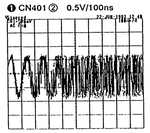
MB-702 (RF AMPLIFIER, SERVO), MD-703 (MECHANISM OPERATION DETECTION), BI-702 (LD SIDE B, LIMIT DETECTION), FG-704 (SPINDLE FG), MT-703 (TILT MOTOR) SCHEMATIC DIAGRAM

– Ref. No. MB-702 Board ; 1,000 Series, MD-703 Board, BI-702 Board, FG-704 Board, MT-703 Board ; 2,000 Series –

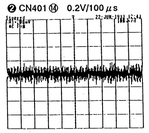


MB-702 BOARD

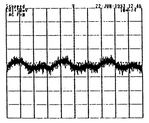
❶ CN401 ② 0.5V/100ns



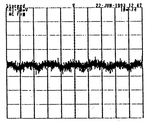
❷ CN401 ④ 0.2V/100 μs



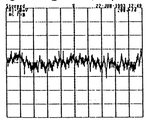
❸ IC405 ① 50mV/10ms



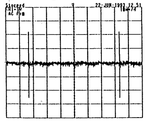
❹ CN405 ④ 50mV/10ms



❺ CN401 ⑥ 50mV/200 μs



❻ CN401 ⑦ 1V/10ms

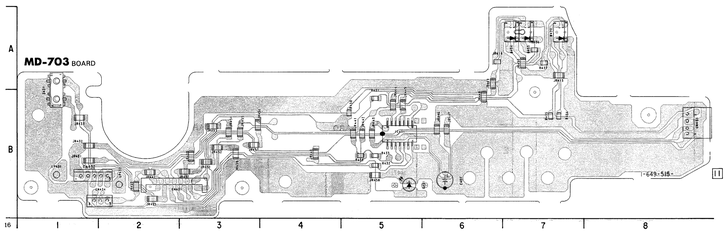


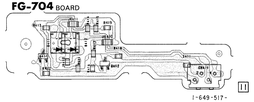
MB-702 (SERVO, SYSTEM CONTROL, VIDEO, AUDIO), MD-703 (MECHANISM OPERATION DETECTION), BI-702 (LD SIDE B, LIMIT DETECTION), FG-704 (SPINDLE FG), MT-703 (TILT MOTOR) PRINTED WIRING BOARD

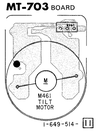
– Ref. No. MB-702 Board ; 1,000 Series, MD-703 Board, BI-702 Board, FG-704 Board, MT-703 Board ; 2,000 Series –

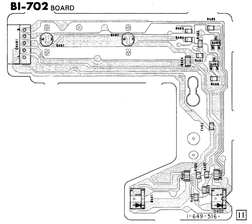
MD-703 BOARD

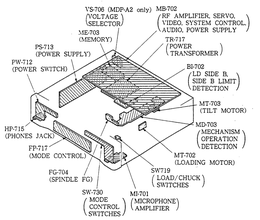
CK431	B-2
CK432	B-1
CK433	B-8
CK434	B-2
D431	B-5
D432	A-7
D433	A-7
D434	A-7
IC431	B-5







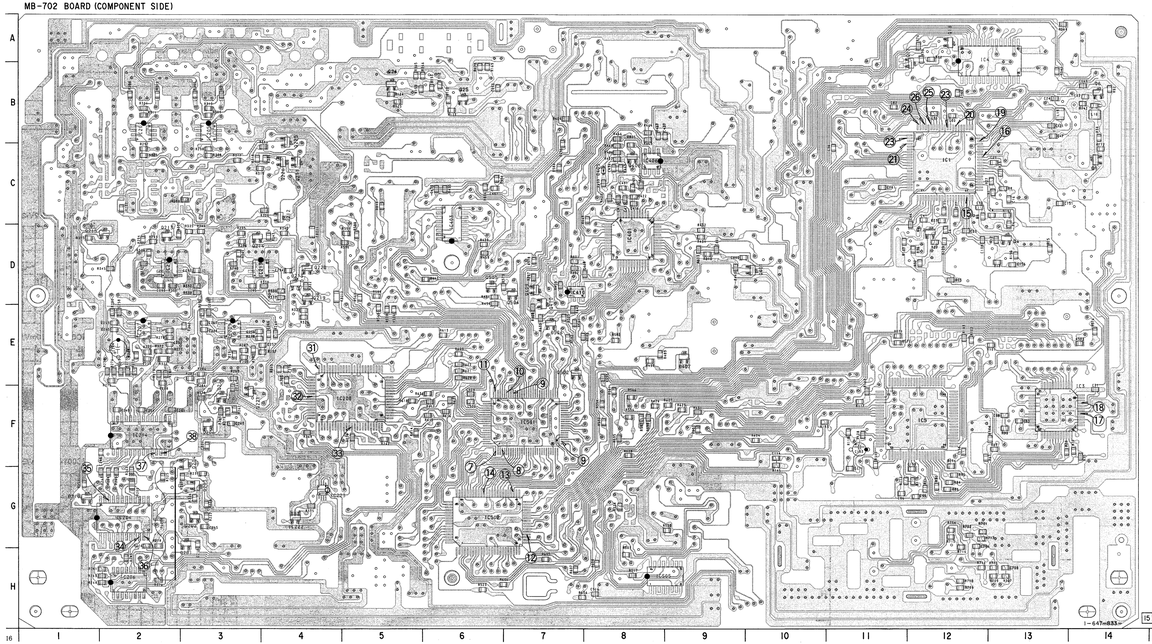




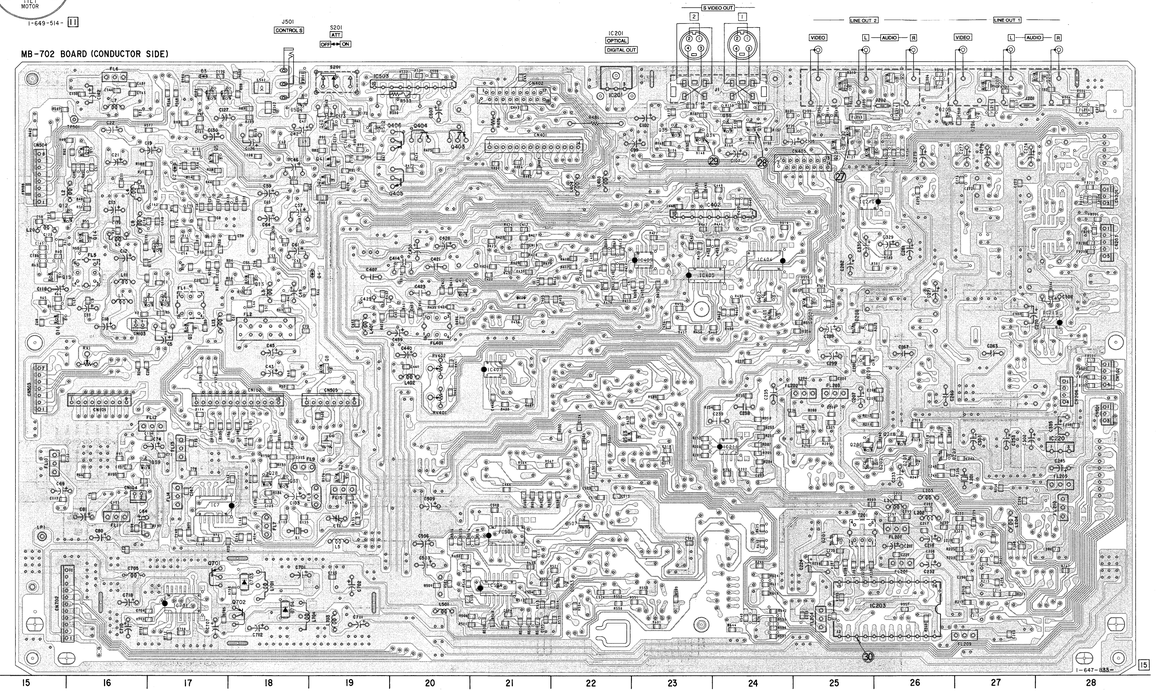
MB-702 BOARD

CK101	E-16	D001	D-17
CK102	E-18	D002	D-17
CK103	D-16	D003	D-17
CK104	F-16	D004	D-13
CK201	C-28	D005	B-17
CK203	C-26	D006	B-14
CK205	E-28	D007	C-17
CK401	B-21	D008	E-19
CK402	A-21	D009	C-14
CK403	B-25	D010	B-16
CK501	E-28	D011	D-12
CK502	E-28	D012	C-16
CK503	E-15	D013	D-18
CK504	B-15	D014	C-16
CK505	E-19	D015	D-16
CK702	H-15	D016	D-15
		D017	A-12
CT001	G-19	D018	A-12
		D019	A-18
D002	B-17	D020	A-17
D003	A-17	D023	B-25
D004	D-19	D024	B-5
D006	F-19	D025	B-6
D201	G-25	D026	F-19
D202	F-26	D027	B-26
D203	F-26	D028	F-18
D205	B-26	D030	B-24
D206	B-27	D031	F-18
D207	F-26	D032	B-25
D208	D-25	D033	B-24
D209	F-25	D034	B-23
D210	G-1	D035	B-23
D213	D-4	D039	F-17
D401	D-24	D040	B-19
D402	D-24	D041	B-19
D405	C-8	D042	B-19
D407	E-9	D201	H-3
D502	B-19	D202	E-3
D503	C-22	D203	E-3
D504	B-18	D204	F-3
D506	E-7	D205	F-25
D507	C-22	D206	F-3
D703	C-18	D207	A-27
D704	H-18	D208	A-28
		D209	A-25
IC001	C-12	D210	A-26
IC003	F-14	D211	E-4
IC004	A-12	D212	E-4
IC005	F-12	D213	D-2
IC007	F-17	D214	D-3
IC201	A-22	D215	D-1
IC202	B-2	D217	F-3
IC203	H-26	D218	F-26
IC204	G-2	D219	B-4
IC205	B-3	D220	B-4
IC206	H-2	D221	F-3
IC207	E-2	D225	B-4
IC208	F-5	D226	C-4
IC209	E-3	D401	B-10
IC210	C-25	D403	B-20
IC211	F-24	D404	B-20
IC212	D-2	D405	B-20
IC213	D-3	D408	B-20
IC214	F-2	D408	C-8
IC215	D-28	D409	D-7
IC220	D-28	D410	D-7
IC222	C-4	D411	D-20
IC223	C-4	D501	D-25
IC401	D-8	D502	E-7
IC402	C-24	D503	F-22
IC403	C-6	D504	D-7
IC404	D-24	D505	D-6
IC405	D-23	D701	D-17
IC406	C-8	D702	H-18
IC407	E-21		
IC409	D-23	RV001	E-16
IC410	D-7	RV401	E-20
IC501	F-7	RV402	E-20
IC502	E-6		
IC503	A-20		
IC504	C-21		
IC505	H-8		
IC506	G-21		
IC701	H-17		

MB-702 BOARD (COMPONENT SIDE)



MB-702 BOARD (CONDUCTOR SIDE)

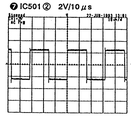


MB-702 (SYSTEM CONTROL), SW-719 (LOAD/CHUCK SWITCHES), MT-702 (LOADING MOTOR), ME-703 (MEMORY) SCHEMATIC DIAGRAM • For the printed wiring diagram of the MB-702 board, refer to page 4-9.

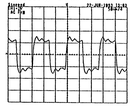
– Ref. No. MB-702 Board ; 1,000 Series, SW-719 Board, MT-702 Board ; 3,000 Series, ME-703 Board ; 1,000 Series –

MB-702 BOARD

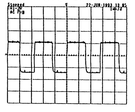
❷ IC501 ② 2V/10 µs



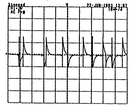
❸ IC501 ⑤ 2V/50ns



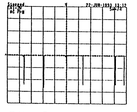
❹ IC501 ⑭, ⑰ 2V/1ms



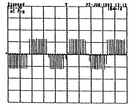
❺ IC501 ⑫ 2V/10ms



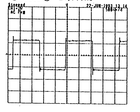
❻ IC501 ⑬ 2V/5ms



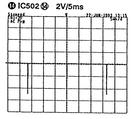
❼ IC502 ⑫ 2V/10ms



❽ IC502 ⑭ 2V/500ns



❾ IC502 ⑬ 2V/5ms

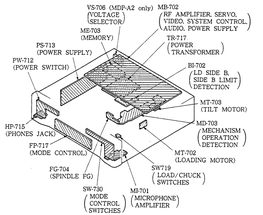


TO POWER SECTION (See Page 4-56)
TO AUDIO SECTION (See Page 4-24)
TO POWER SECTION (See Page 4-54)
TO MC-702 BOARD CN200 (See Page 4-29)
TO VIDEO SECTION (See Page 4-19, 21)
TO VIDEO SECTION (See Page 4-22)
TO AUDIO SECTION (See Page 4-24)
TO FP-717 BOARD CN200 (See Page 4-49)
TO VIDEO SECTION (See Page 4-22)
TO SERVO SECTION (See Page 4-61)
TO VIDEO SECTION (See Page 4-19)
TO FP-717 BOARD CN201 (See Page 4-49)
TO SERVO SECTION (See Page 4-51)
TO SERVO SECTION (See Page 4-51)

MB-702 BOARD (2/5) (SYSCOM SECTION)

IC505 LID/EJECT SELECT SWITCH
IC504 SENSOR AMP/ADAP
IC502 SYSTEM CONTROL M30800MCA-XXXFP
IC506 SELECT SWITCH
IC503 MOTOR DRIVE LV8044V
IC501 SYSTEM CONTROL M30800SFP-D-114
MT-702 BOARD
SW-719 BOARD

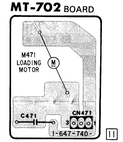
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



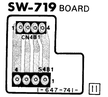
ME-703 BOARD

CN751	C-4
CN752	C-3
CN753	C-1
IC781	A-1
IC782	A-4

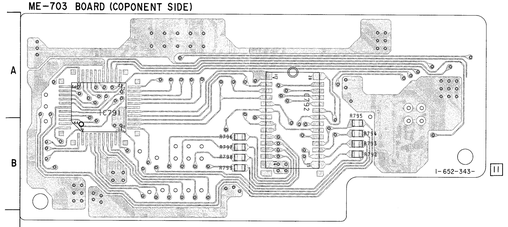
MT-702 BOARD



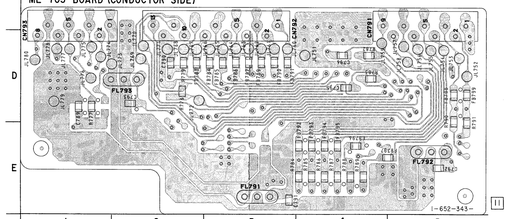
SW-719 BOARD



ME-703 BOARD (COPONENT SIDE)



ME-703 BOARD (CONDUCTOR SIDE)

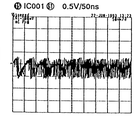


• **SIGNAL PATH**

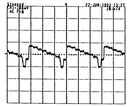
Spindle phase servo	
Spindle servo (Speed and phase)	⋙
Tracking servo	
Sled servo	
Focus servo	
Skew servo	

MB-702 BOARD

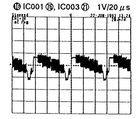
⓫ IC001 ⑪ 0.5V/50ns



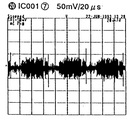
⓬ IC001 ⑮ 0.2V/20 µs



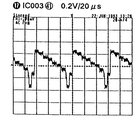
⓭ IC001 ⑱, IC003 ⑭ 1V/20 µs



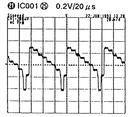
⓮ IC001 ⑦ 50mV/20 µs



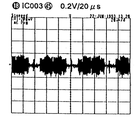
⓯ IC003 ⑪ 0.2V/20 µs



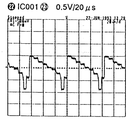
⓰ IC001 ⑤ 0.2V/20 µs



⓱ IC003 ⑫ 0.2V/20 µs

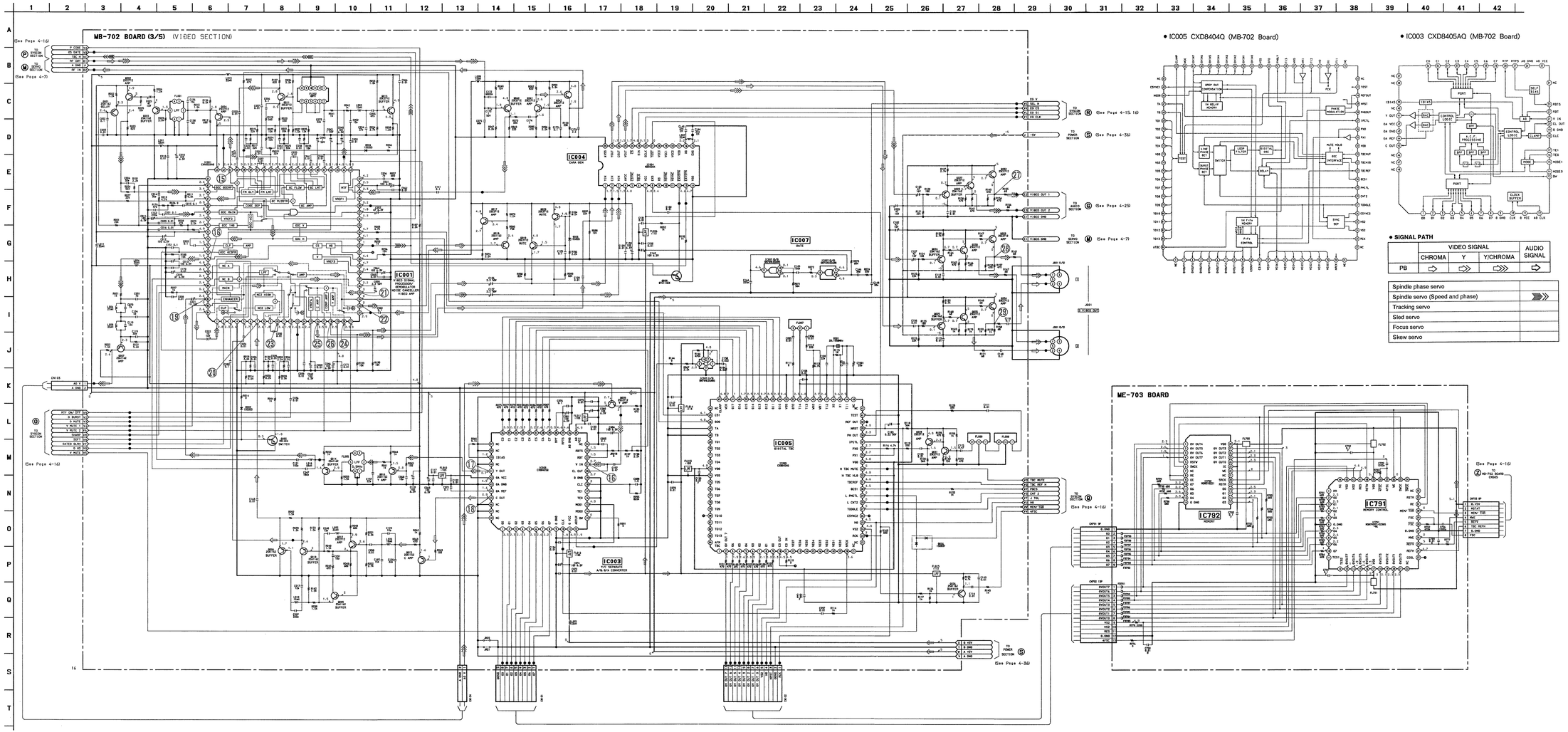


⓲ IC001 ⑬ 0.5V/20 µs



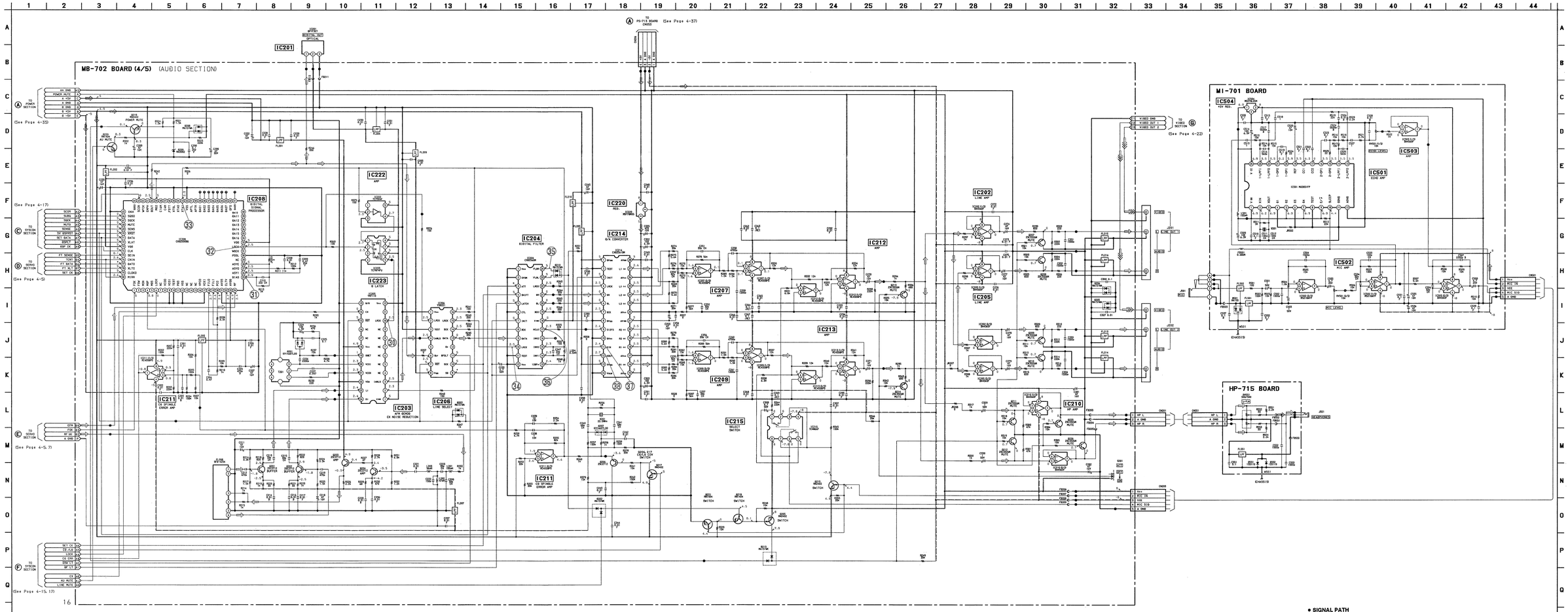
MB-702 (VIDEO), ME-703 (MEMORY) SCHEMATIC DIAGRAM • For the printed wiring diagram of the MB-702 board, refer to page 4-9.

– Ref. No. MB-702 Board, ME-703 Board ; 1,000 Series –



MB-702 (AUDIO), MI-701 (MICROPHONE AMPLIFER), HP-715 (PHONES JACK) SCHEMATIC DIAGRAM • For the printed wiring diagram of the MB-702 board, refer to page 4-9. • For the waveforms and IC block diagram, refer to page 4-29.

– Ref. No. MB-702 Board ; 1,000 Series, MI-701 Board ; 4,000 Series, HP-715 Board ; 5,000 Series –

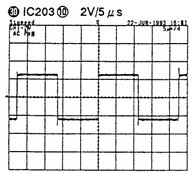


• SIGNAL PATH

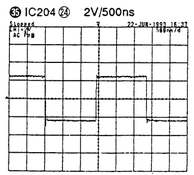
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB			⇨	⇨

MB-702 BOARD

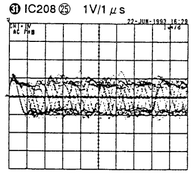
㉚ IC203 ⑯ 2V/5 μs



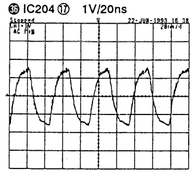
㉙ IC204 ㉔ 2V/500ns



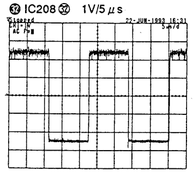
㉛ IC208 ㉕ 1V/1 μs



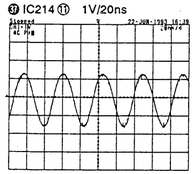
㉘ IC204 ⑰ 1V/20ns



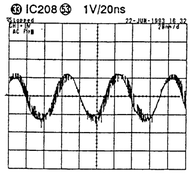
㉜ IC208 ㉖ 1V/5 μs



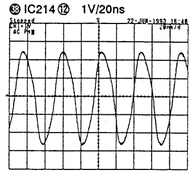
㉗ IC214 ⑪ 1V/20ns



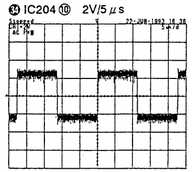
㉝ IC208 ㉓ 1V/20ns



㉖ IC214 ⑫ 1V/20ns



㉞ IC204 ⑩ 2V/5 μs



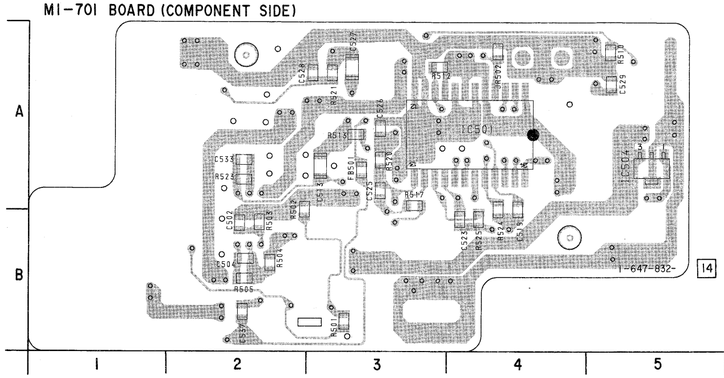
MI-701 BOARD

CN501	A-6
D501	B-8
IC501	A-5
IC502	B-5
IC503	A-9
IC504	A-5

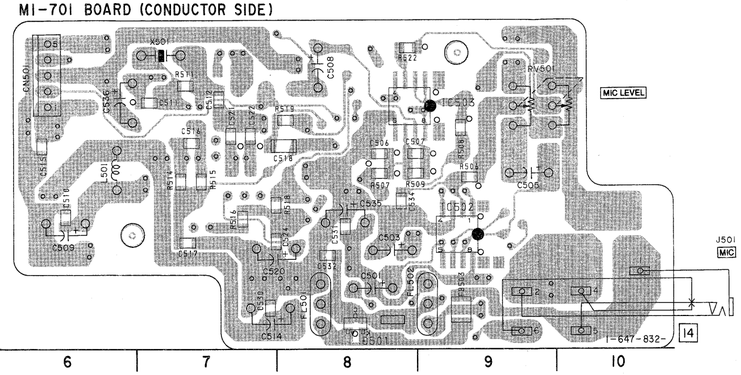
MI-701 (MICROPHONE AMPLIFER), HP-715 (PHONES JACK) PRINTED WIRING BOARD

– Ref. No. MI-701 Board ; 4,000 Series, HP-715 Board ; 5,000 Series –

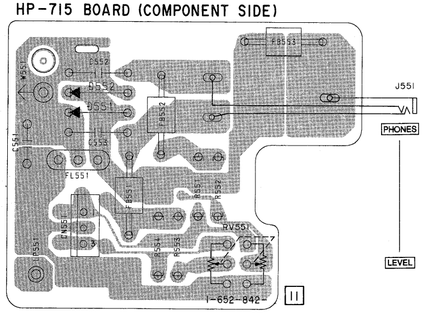
MI-701 BOARD (COMPONENT SIDE)



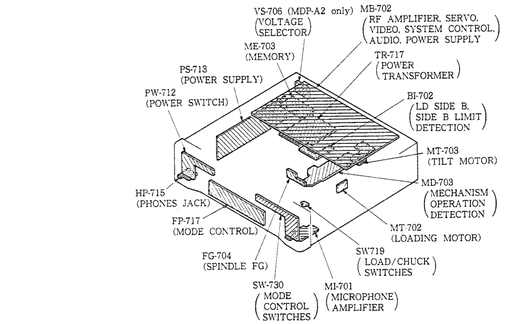
MI-701 BOARD (CONDUCTOR SIDE)



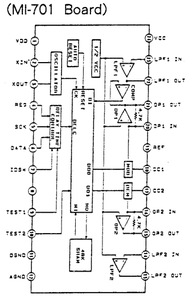
HP-715 BOARD (COMPONENT SIDE)



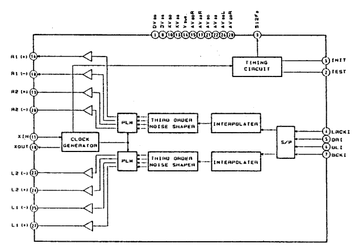
16



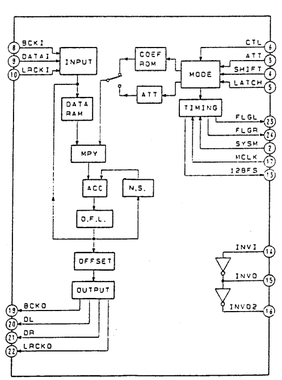
• IC501 M65831FP-600C (MI-701 Board)



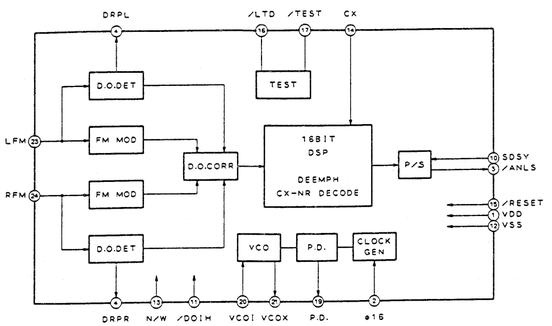
• IC214 CXD2561BM (MB-702 Board)



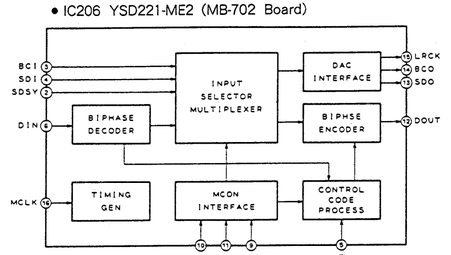
• IC204 CXD2560M (MB-702 Board)



• IC203 YM7110 (MB-702 Board)

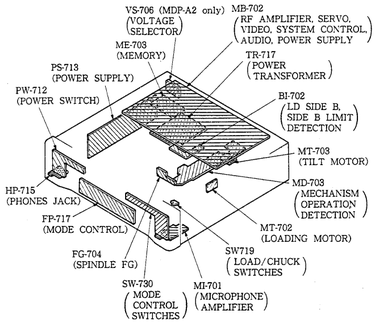


• IC206 YSD221-ME2 (MB-702 Board)



PS-713 (POWER SUPPLY), TR-717 (POWER TRANSFORMER), VS-706 (VOLTAGE SELECTOR) PRINTED WIRING BOARD

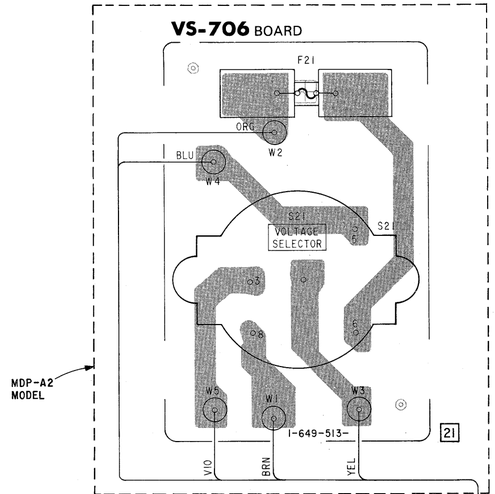
– Ref. No. PS-713 Board, TR-717, VS-706 Board ; 6,000 Series –



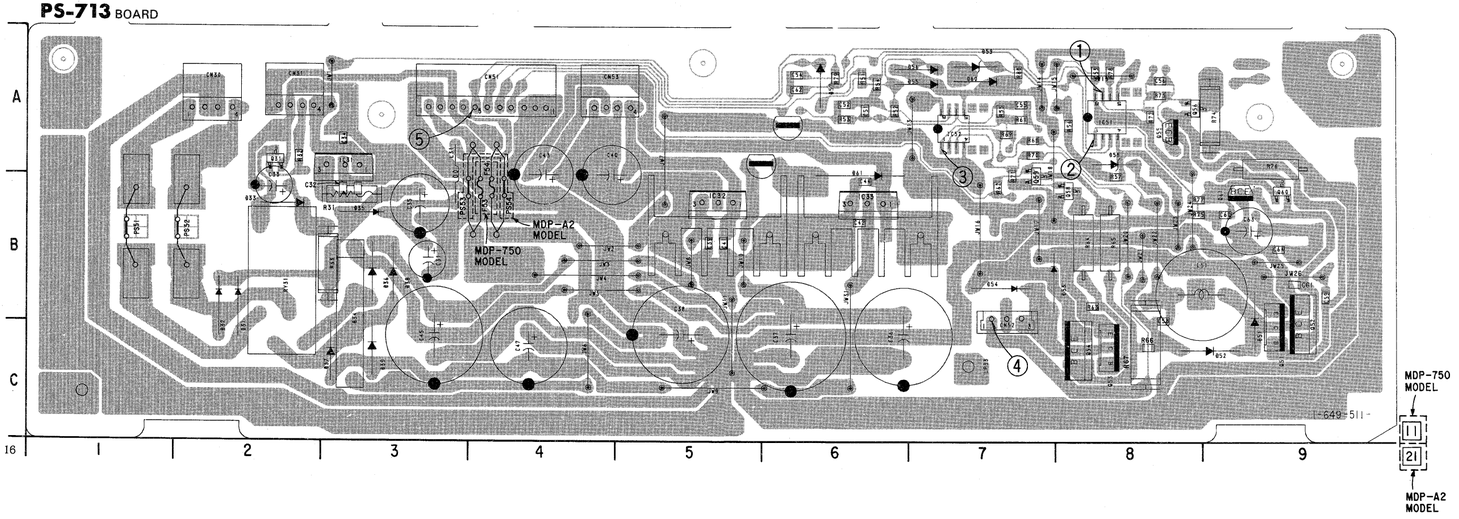
PS-713 BOARD

CN030	A-2	D051	C-9	IC031	A-3	Q031	A-2
CN031	A-2	D052	C-9	IC032	B-5	Q051	C-9
CN051	A-4	D053	B-7	IC033	B-6	Q052	C-9
CN052	B-7	D054	B-7	IC051	A-8	Q053	C-8
CN053	A-4	D055	A-7	IC052	A-7	Q054	C-8
		D056	A-7			Q055	A-8
D031	B-2	D057	A-6			Q056	A-8
D032	B-2	D058	A-8			Q058	B-8
D033	B-2	D059	A-7			Q059	B-7
D034	B-3	D060	A-7			Q060	B-9
D035	B-3	D061	B-6			Q061	B-9
D036	B-3						
D037	C-3						
D038	B-3						
D039	C-3						

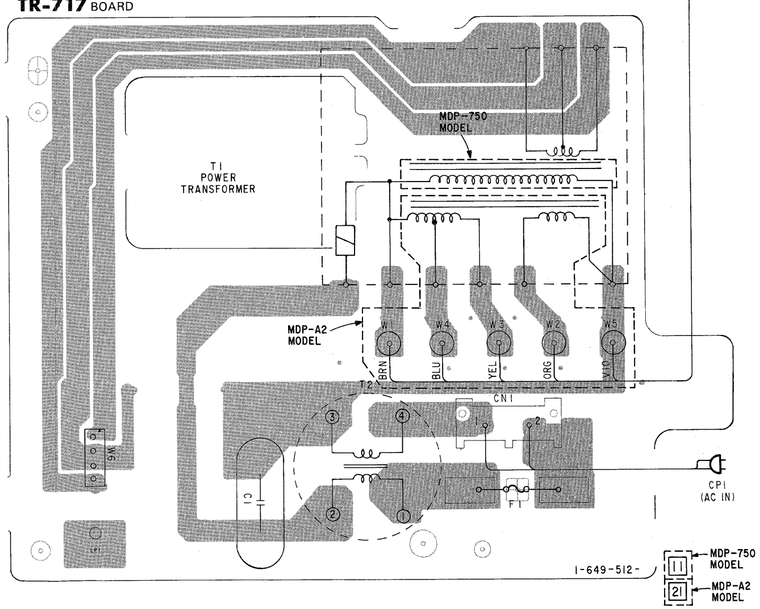
VS-706 BOARD



PS-713 BOARD

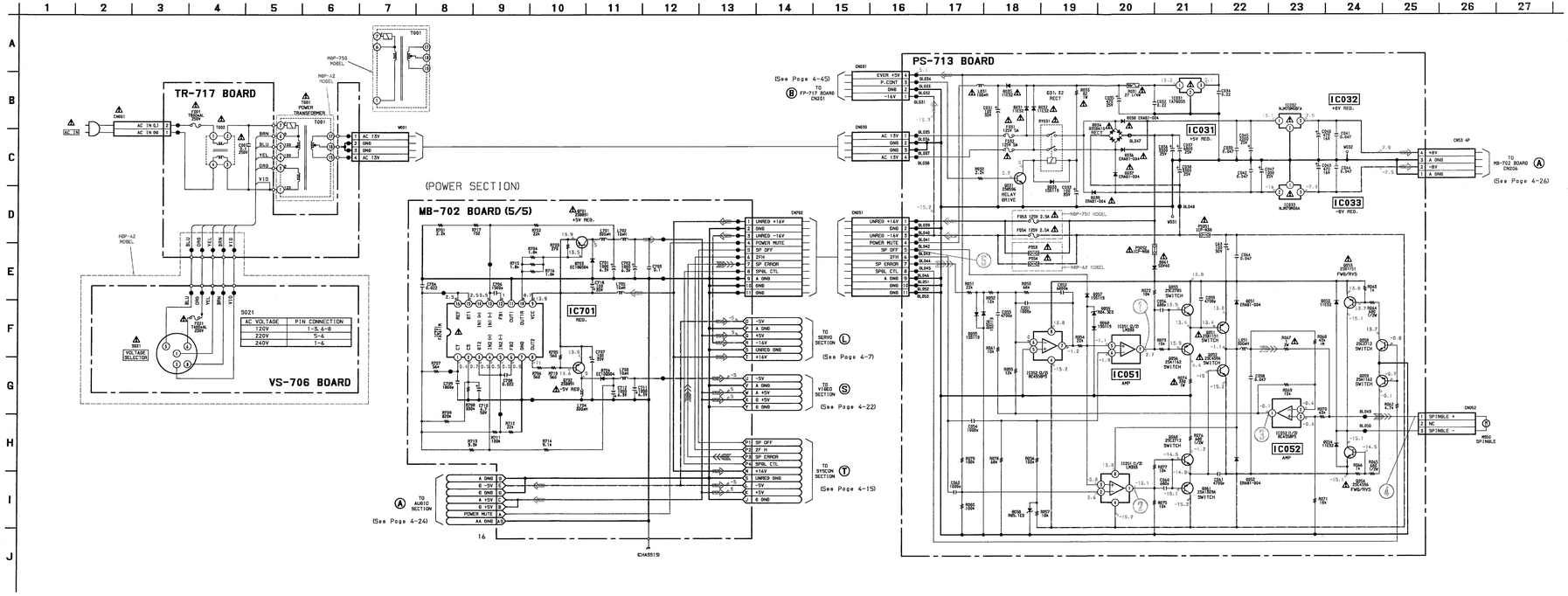


TR-717 BOARD



MB-702 (POWER SUPPLY), PS-713 (POWER SUPPLY), TR-717 (POWER TRANSFORMER), VS-706 (VOLTAGE SELECTOR) SCHEMATIC DIAGRAM • For the printed wiring diagram of the MB-702 board, refer to page 4-9.

– Ref. No. MB-702 Board ; 1,000 Series, PS-713 Board, TR-717, VS-706 Board ; 6,000 Series –

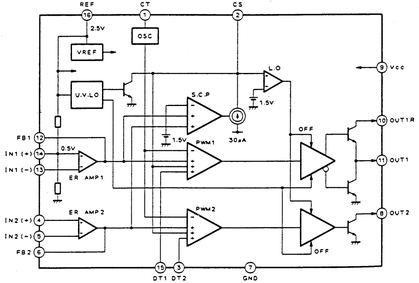


4-35

4-36

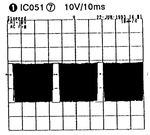
4-37

• IC701 FA7611M (MB-702 Board)

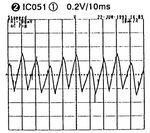


PS-713 BOARD

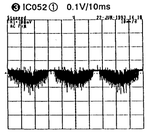
❶ IC051⑦ 10V/10ms



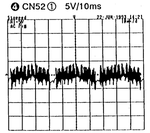
❷ IC051① 0.2V/10ms



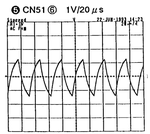
❸ IC052① 0.1V/10ms



❹ CN52① 5V/10ms



❺ CN51⑥ 1V/20 μs



Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

• **SIGNAL PATH**

Spindle phase servo	
Spindle servo (Speed and phase)	⋙
Tracking servo	
Sled servo	
Focus servo	
Skew servo	

4-38

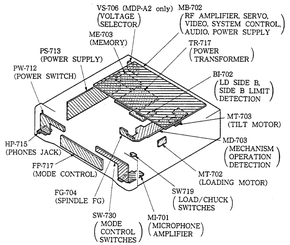
POWER SUPPLY

FP-717 (MODE CONTROL), SW-730 (CONTROL SWITCHES), PW-712 (POWER SWITCH) PRINTED WIRING BOARD

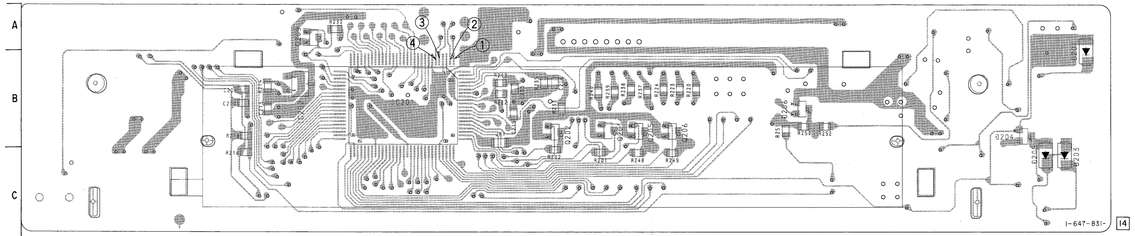
– Ref. No. FP-717 Board, SW-730 Board, PW-712 Board ; 7,000 Series –

FP-717 BOARD

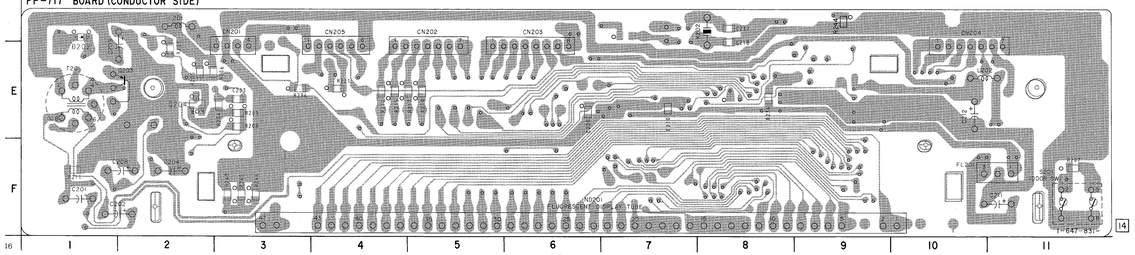
CN201	E-3
CN202	E-5
CN203	E-6
CN204	E-10
CN205	E-4
D201	A-11
D202	E-1
D203	C-11
D204	B-11
D205	C-11
D206	B-8
IC201	B-4
IC202	B-3
Q201	B-7
Q202	B-6
Q203	E-2
Q204	E-2
Q205	B-7
Q206	B-7
Q209	A-3



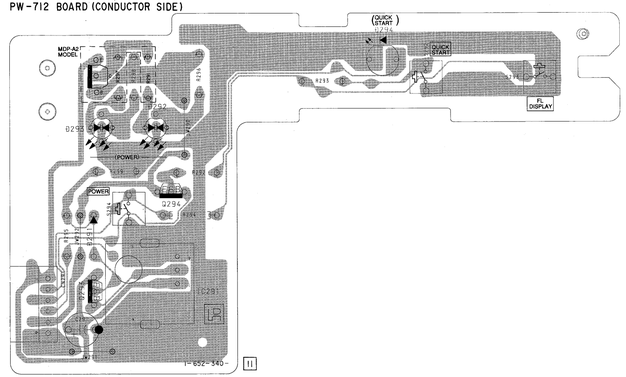
FP-717 BOARD (COMPONENT SIDE)



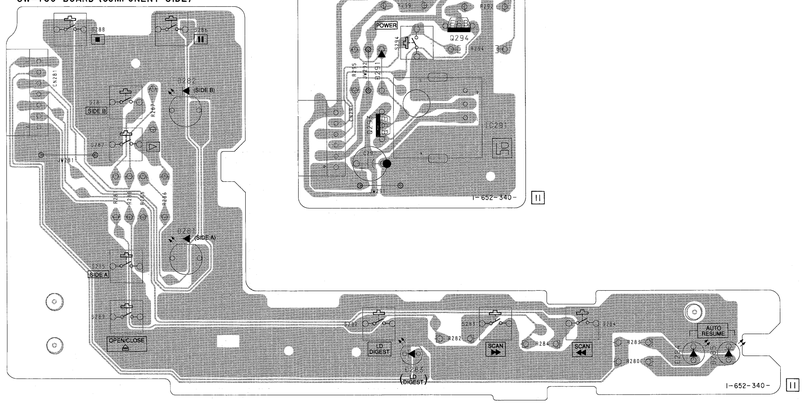
FP-717 BOARD (CONDUCTOR SIDE)



PW-712 BOARD (CONDUCTOR SIDE)

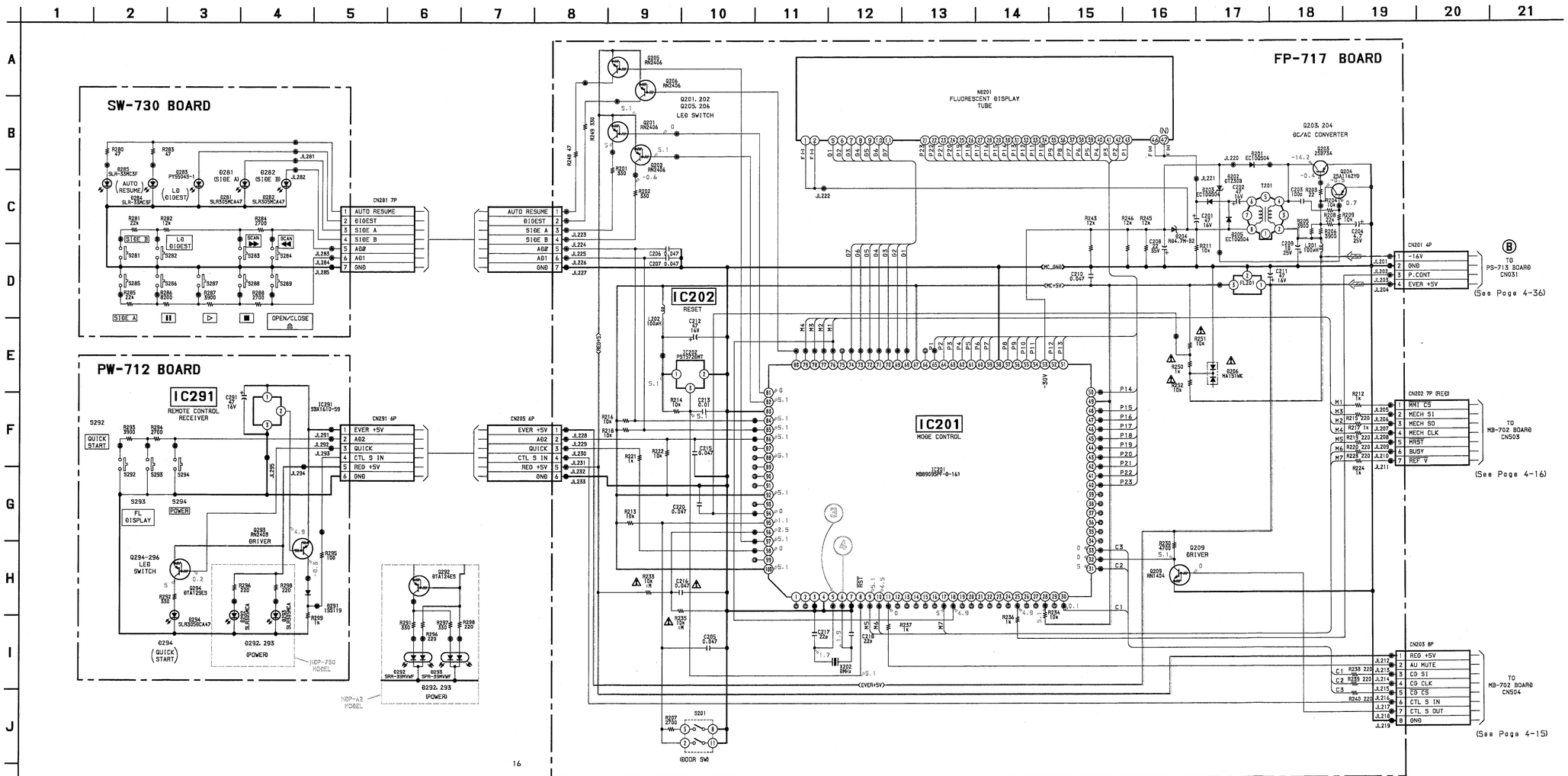


SW-730 BOARD (COMPONENT SIDE)



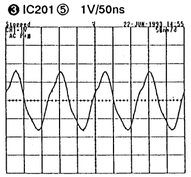
FP-717 (MODE CONTROL), SW-730 (CONTROL SWITCHES), PW-712 (POWER SWITCH) SCHEMATIC DIAGRAM

– Ref. No. FP-717 Board, SW-730 Board, PW-712 Board ; 7,000 Series –

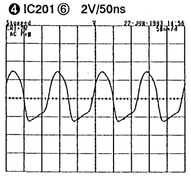


FP-717 BOARD

❸ IC201 ⑤ 1V/50ns



❹ IC201 ⑥ 2V/50ns

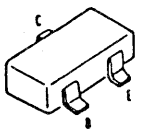


Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

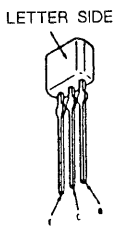
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-3. SEMICONDUCTOR LEAD LAYOUTS

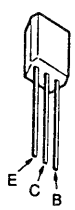
DTC114EK
RN1404
RN2402
RN2403
RN2404
RN2406
2SA1162-G
2SC2712-YG
2SC3326N-A
2SD596DV345



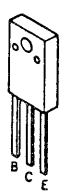
2SA1175-HFE
2SC2785-HFE



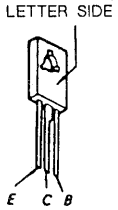
DTA124ES



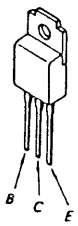
2SB891



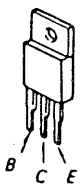
2SB1151-L



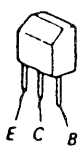
2SC4596E



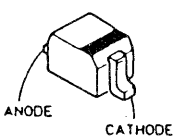
2SB1370-EF
2SD2012



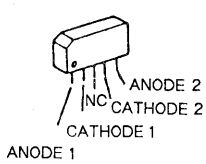
2SB734-34



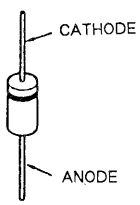
DTZ30B-TT11
EC10QS-04
1SS355



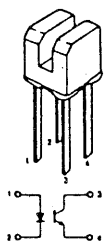
D3SBA10-4100



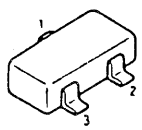
ERA83-006



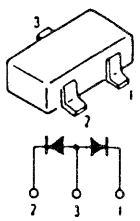
GP1S24
PT360FS



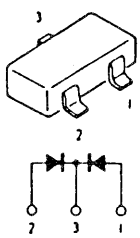
KV1460TL00



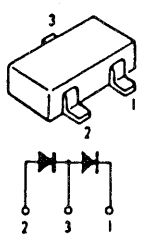
1S2836



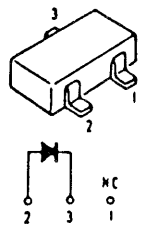
1SS184



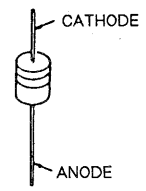
1SS226



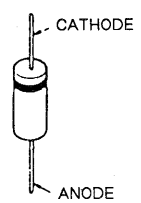
MA3082M-TX
MA3091
MA3120-TX
RD4.7M-B2



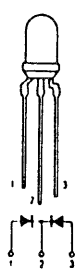
RD4.3ESB2
RD5.1ESB2
1SS119
11ES2



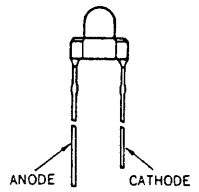
S3V40



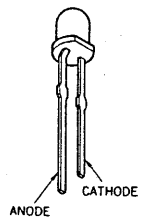
SLR-305DC3F



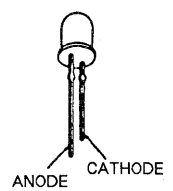
SLR-305MC3F



SLR-33MC3F



PY5504S-1
SLR-932A



SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

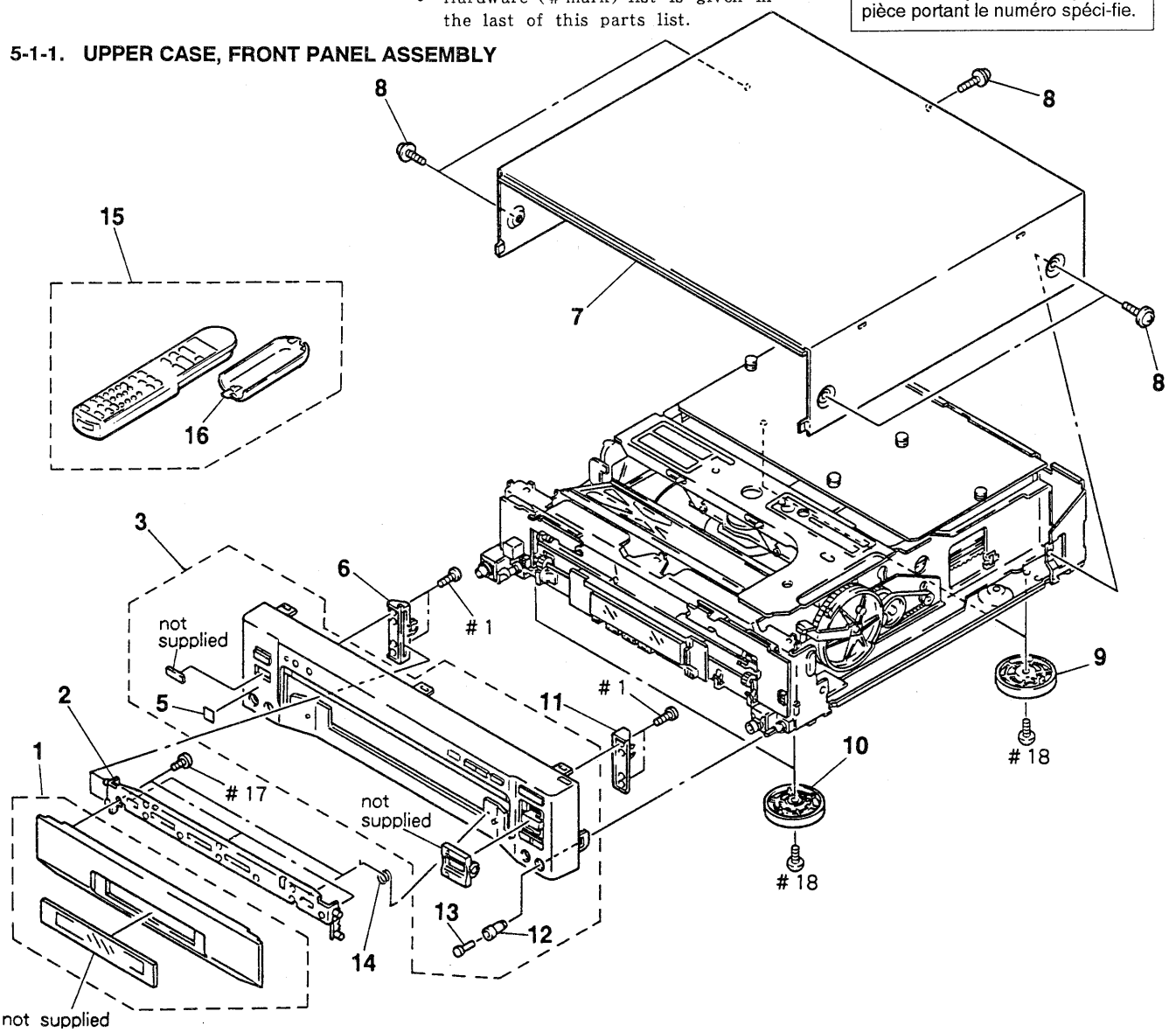
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

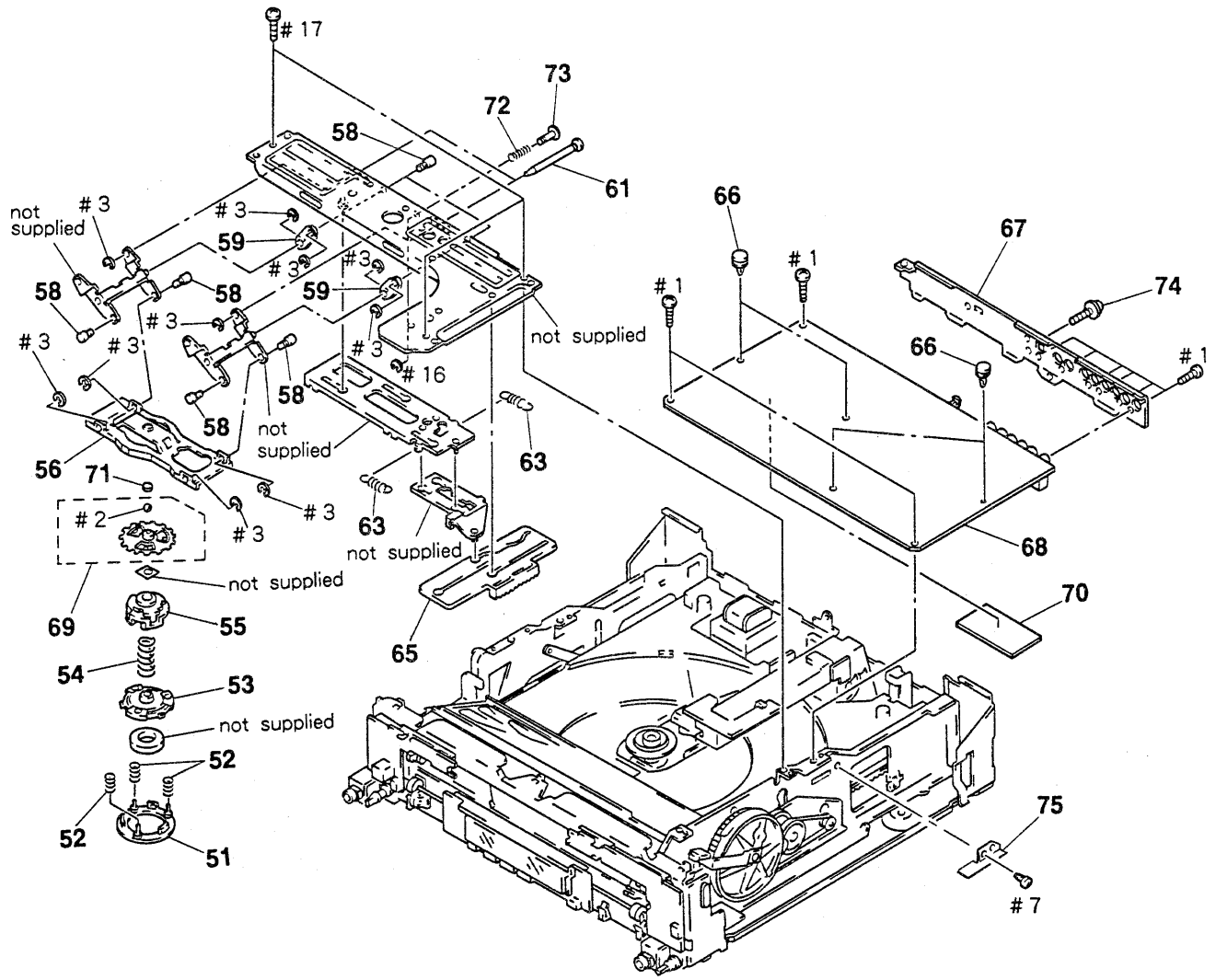
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spéci-fie.

5-1-1. UPPER CASE, FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remarks
1	X-3944-114-1	DOOR ASSY (A2)	
1	X-3943-785-1	DOOR ASSY (750)	
2	X-3942-785-1	DISK ASSY, DOOR	
3	X-3943-780-1	PANEL ASSY, FRONT (A2)	
3	X-3943-784-1	PANEL ASSY, FRONT (750)	
5	3-703-710-41	STICKER, SONY SYMBOL (12)	
* 6	3-953-312-01	HOLDER (L), SLIDE	
7	X-3942-908-1	CASE ASSY, UPPER (A2)	
7	X-3942-909-1	CASE ASSY, UPPER (750)	
8	3-710-901-41	SCREW, TAPPING (A2)	
8	3-947-364-01	SCREW, UPPER CPVER TAPPING (750)	
9	X-3942-811-1	FOOT ASSY (2.5)	
10	X-3943-312-1	FOOT ASSY (A2)	
10	X-3943-320-1	FOOT ASSY (750)	
* 11	3-953-313-01	HOLDER (R), SLIDE	
12	3-953-319-11	KNOB, ECHO (ECHO LEVEL) (750)	
12	3-953-319-21	KNOB, ECHO (ECHO LEVEL) (A2)	
13	3-953-318-11	KNOB, MICROPHONE (MIC LEVEL) (750)	
13	3-953-318-21	KNOB, MICROPHONE (MIC LEVEL) (A2)	
14	3-953-309-01	SPRING, TORSION	
15	1-467-603-41	REMOTE COMMANDER (RMT-M25A)	
16	9-900-029-01	BATTERY COVER	

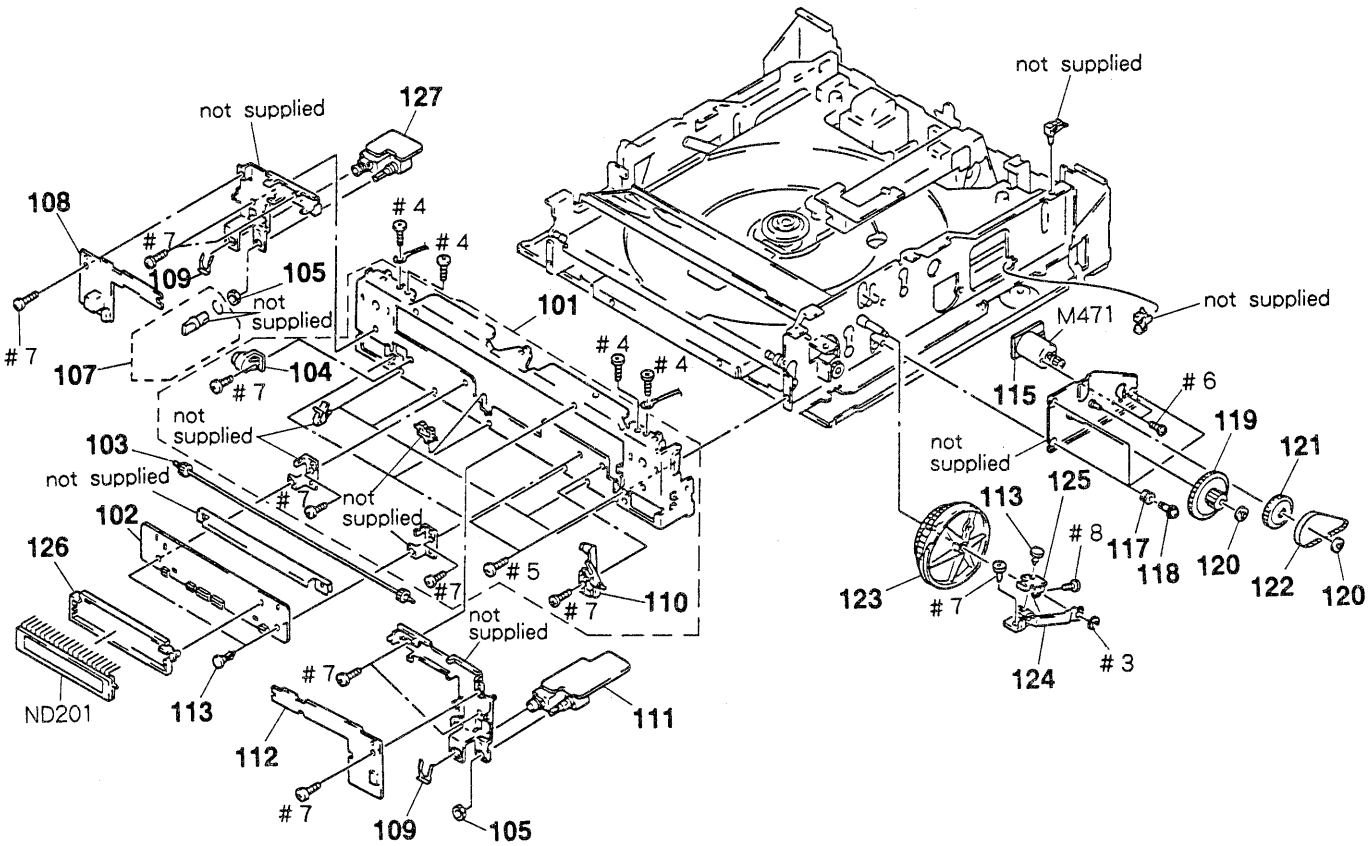
5-1-2. CHUCK FRAME ASSEMBLY



Ref. No.	Part No.	Description	Remarks
51	X-3943-043-1	GUIDE (B) ASSY, CENTER	
52	3-953-290-01	SPRING (2), COMPRESSION	
53	X-3942-776-1	HOLDER ASSY, MAGNET	
54	3-953-291-01	SPRING (1), COMPRESSION	
55	3-953-288-01	PLATE, CHUCKING	
* 56	3-953-354-01	PLATE, CHUCK	
* 58	3-953-345-01	SHAFT, ARM (S)	
* 59	3-953-352-01	ARM (S)	
* 61	3-953-355-01	SHAFT, SLIDE	
63	3-486-135-XX	SPRING, TENSION	
65	3-953-348-01	CAM, CHUCK	

Ref. No.	Part No.	Description	Remarks
* 66	4-386-173-01	SPACER	
* 67	3-953-380-11	PLATE, JACK	
* 68	A-6423-132-A	MB-702 BOARD, COMPLETE (750)	
* 68	A-6423-134-A	MB-702 BOARD, COMPLETE (A2)	
69	X-3942-787-1	PLATE ASSY, TOP	
70	A-6423-049-A	ME-703 BOARD, COMPLETE	
71	3-953-392-01	RETAINER, THRUST	
72	3-353-241-01	SPRING, COMPRESSION	
* 73	3-953-831-01	STOPPER, OPT	
74	3-710-901-41	SCREW, TAPPING	
75	3-955-673-01	SPRING, LEAF (A2)	

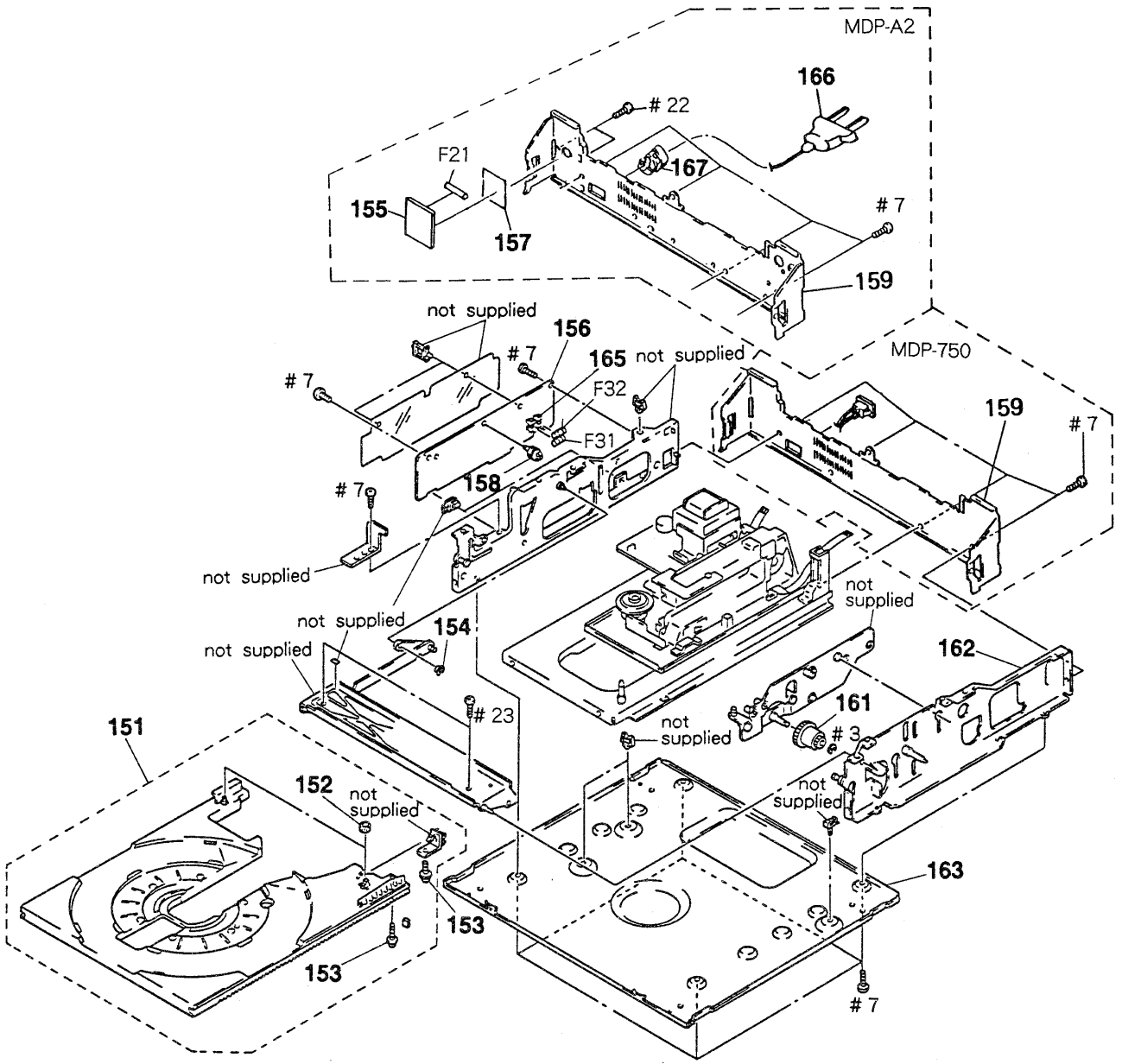
5-1-3. SUB FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remarks
* 101	A-6408-302-A	FRAME BLOCK ASSY, FRONT	
* 102	A-6423-133-A	FP-717 BOARD, COMPLETE	
103	3-953-325-01	GEAR, PHASE	
104	4-919-393-01	DAMPER	
105	3-950-989-01	NUT (M7), HEXAGON	
107	A-6415-522-A	KNOB BLOCK ASSY (750)	
107	A-6415-691-A	KNOB BLOCK ASSY (A2)	
* 108	A-6423-131-A	PW-712 BOARD, COMPLETE (750)	
* 108	A-6423-136-A	PW-712 BOARD, COMPLETE (A2)	
* 109	3-684-436-01	PLATE, MOUNT	
110	X-3942-786-1	LINK ASSY, DRIVING	
* 111	A-6423-128-A	MI-701 BOARD, COMPLETE	
* 112	A-6423-130-A	SW-730 BOARD, COMPLETE	
* 113	3-954-681-01	RIVET, NYLON	

Ref. No.	Part No.	Description	Remarks
115	A-6421-953-A	MT-702 BOARD, COMPLETE	
117	3-570-118-00	CUSHION, MOTOR	
118	3-570-027-00	SCREW, MOTOR	
119	3-953-358-01	GEAR, MIDWAY	
120	3-669-595-00	WASHER (2), STOPPER	
121	3-953-394-01	PULLEY (A)	
122	3-953-393-01	BELT, TIMING	
123	3-953-356-01	GEAR, CONTROL	
* 124	3-953-357-01	BRACKET, SW	
125	A-6421-954-A	SW-719 BOARD, COMPLETE	
126	3-953-317-01	HOLDER, TUBE, FL	
* 127	A-6423-127-A	HP-715 BOARD, COMPLETE	
M471	X-3942-963-1	MOTOR ASSY (LOADING MOTOR)	
ND201	1-517-161-11	INDICATOR TUBE, FLUORESCENT	

5-1-4. CHASSIS ASSEMBLY

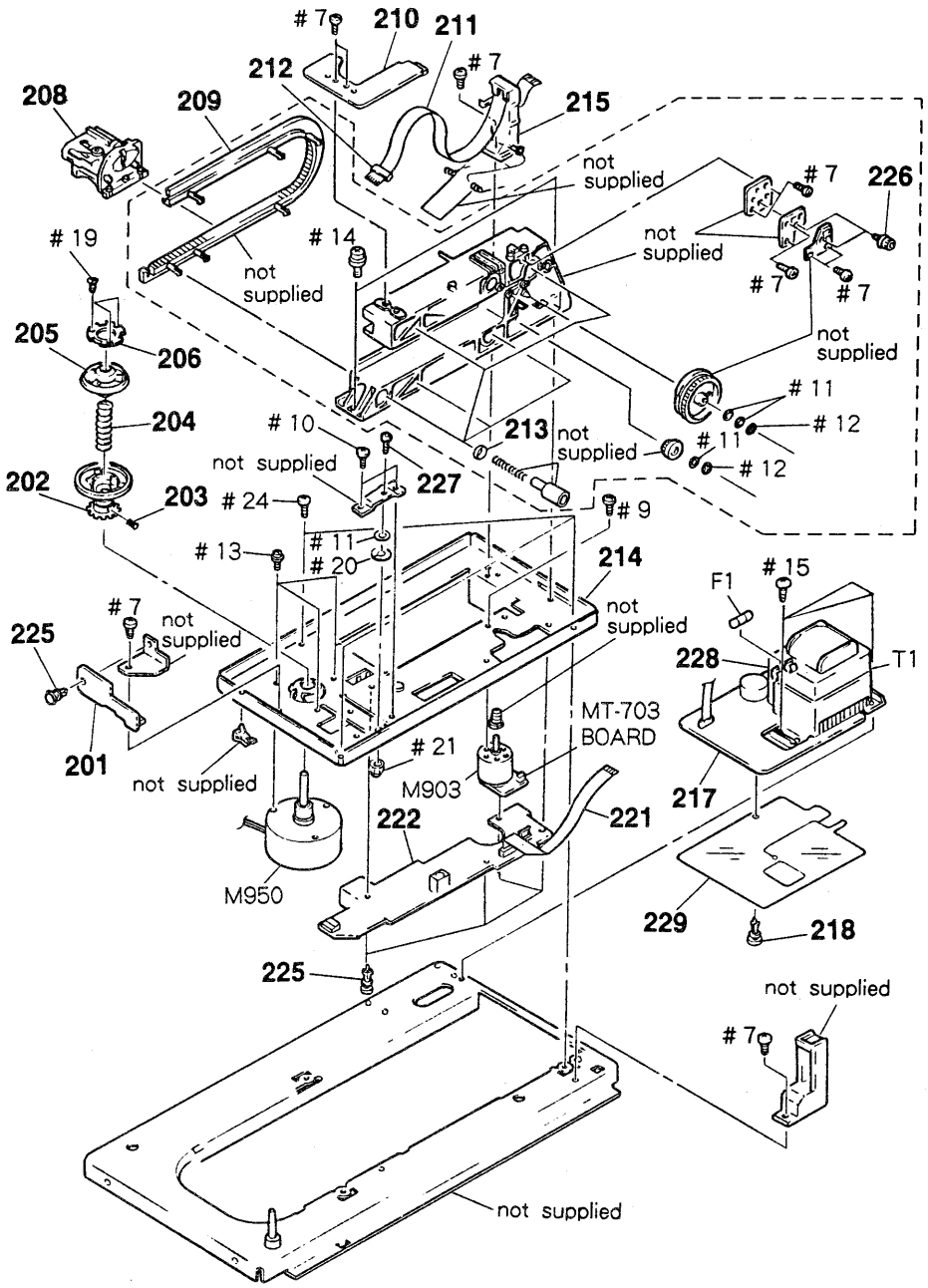


Ref. No.	Part No.	Description	Remarks
151	X-3942-780-1	TRAY ASSY (750)	
151	X-3942-781-1	TRAY ASSY (A2)	
* 152	4-914-248-01	STOPPER, RUBBER	
153	3-710-901-11	SCREW, TAPPING	
154	3-703-074-01	CAP 3, SHAFT	
* 155	A-6423-011-A	VS-706 BOARD, COMPLETE (A2)	
* 156	A-6423-126-A	PS-713 BOARD, COMPLETE (750)	
* 156	A-6423-135-A	PS-713 BOARD, COMPLETE (A2)	
* 157	3-953-821-03	SHEET, INSULATING (A2)	
* 158	4-884-834-00	SUPPORT, PC	
* 159	3-955-881-41	PANEL, REAR (A2)	
* 159	3-955-881-51	PANEL, REAR (750)	

Ref. No.	Part No.	Description	Remarks
161	3-953-361-01	GEAR, IDLER	
162	X-3944-075-1	FRAME (R) ASSY	
* 163	3-953-383-01	PLATE, BOTTOM	
⚠165	1-533-189-11	HOLDER, FUSE	
⚠166	1-575-912-21	CORD, POWER (A2)	
⚠167	3-703-244-00	BUSHING (2104), CORD(A2)	
⚠F21	1-532-066-00	FUSE, TIME-LAG (A2)	
⚠F31	1-532-299-00	FUSE, TIME-LAG (A2)	
⚠F31	1-532-747-11	FUSE, GLASS TUBE (750)	
⚠F32	1-532-299-00	FUSE, TIME-LAG (A2)	
⚠F32	1-532-747-11	FUSE, GLASS TUBE (750)	

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1-5. MD CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remarks
201	A-6421-957-A	FG-704 BOARD, COMPLETE	
202	X-3942-779-1	TURNTABLE ASSY	
203	3-701-507-00	SET SCREW, DOUBLE POINT, (M3X5)	
204	3-953-289-01	SPRING (3), COMPRESSION	
205	3-953-292-01	GUIDE, CENTER	
206	3-953-293-01	PLATE (C), YOKE	
⚠208	8-848-286-11	DEVICE, OPTICAL KHS-150A	
209	A-6404-082-A	BASE BLOCK ASSY, FEED	
210	A-6421-958-A	BI-702 BOARD, COMPLETE	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
212	3-953-268-01	HOLDER (18P), FLEXIBLE	
213	3-953-830-01	WASHER, U	
* 214	A-6404-080-A	PLATE BLOCK ASSY, BASE	
215	A-6404-076-A	STAND ASSY, FLEXIBLE RETAINER	
* 217	A-6423-010-A	TR-717 BOARD, COMPLETE (A2)	
* 217	A-6423-048-A	TR-717 BOARD, COMPLETE (750)	
218	3-531-576-11	RIVET	

Ref. No.	Part No.	Description	Remarks
221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	
222	A-6421-956-A	MD-703 BOARD, COMPLETE	
225	3-703-356-00	RIVET, T TYPE	
226	3-899-249-01	BOLT, HEXAGON SOCKET	
227	3-953-829-01	BOLT	
⚠228	1-533-189-11	HOLDER, FUSE	
⚠229	3-953-377-02	SHEET, INSULATING, TR (A2)	
⚠F1	1-532-215-00	FUSE, TIME-LAG (A2)	
⚠F1	1-532-742-11	FUSE, GLASS TUBE (750)	
M903	1-541-930-11	MOTOR, DC	
M950	1-698-109-11	MOTOR, DD (SPINDLE)	
⚠T1	1-423-522-11	TRANSFORMER, POWER (750)	
⚠T1	1-423-556-11	TRANSFORMER, POWER (A2)	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-2. ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spéci-fie.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS :
  uF : μF
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- COILS
  uH : μH
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... ,uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
	A-6421-958-A	BI-702 BOARD, COMPLETE			
		**********			
					(Ref. No. 2, 000 Seriese)
	3-953-261-01	HOLDER, PD			
		< CAPACITOR >			
C401	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN401	1-506-484-11	PIN, CONNECTOR 5P			
		< DIODE >			
D401	8-729-020-74	DIODE	GP1S24		
D402	8-729-020-74	DIODE	GP1S24		
		< JUMPER RESISTOR >			
JR401	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR403	1-216-295-00	METAL CHIP	0	5%	1/10W
JR404	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR405	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< TRANSISTOR >			
Q401	8-729-904-10	TRANSISTOR	PT360FS		
Q402	8-729-904-10	TRANSISTOR	PT360FS		
Q403	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q404	8-729-230-49	TRANSISTOR	2SC2712-YG		
		< RESISTOR >			
R401	1-216-075-00	METAL CHIP	12K	5%	1/10W
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R405	1-216-039-00	METAL CHIP	390	5%	1/10W
R406	1-216-111-00	METAL CHIP	390K	5%	1/10W
R407	1-216-099-00	METAL CHIP	120K	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
**********					

Ref. No.	Part No.	Description			Remarks
	A-6421-957-A	FG-704 BOARD, COMPLETE			
		**********			
					(Ref. No. 2, 000 Seriese)
		< CAPACITOR >			
C411	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN411	1-691-863-11	CONNECTOR, BOARD TO BOARD			
		< DIODE >			
D411	8-729-020-74	DIODE	GP1S24		
D412	8-729-020-74	DIODE	GP1S24		
		< JUMPER RESISTOR >			
JR410	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR411	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR412	1-216-295-00	METAL CHIP	0	5%	1/10W
		< TRANSISTOR >			
Q411	8-729-216-22	TRANSISTOR	2SA1162-G		
Q412	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R411	1-216-037-00	METAL CHIP	330	5%	1/10W
R412	1-216-097-00	METAL CHIP	100K	5%	1/10W
R413	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R414	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R415	1-216-049-00	METAL CHIP	1K	5%	1/10W
R416	1-216-097-00	METAL CHIP	100K	5%	1/10W
R417	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R418	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R419	1-216-049-00	METAL CHIP	1K	5%	1/10W
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Ref. No.	Part No.	Description			Remarks
*	A-6423-133-A	FP-717 BOARD, COMPLETE			
		**********			
					(Ref. No. 7,000 Seriese)
	3-953-317-01	HOLDER, TUBE, FL			
		< CAPACITOR >			
C201	1-124-589-11	ELECT	47uF	20%	16V
C202	1-124-589-11	ELECT	47uF	20%	16V
C203	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C204	1-126-163-11	ELECT	4.7uF	20%	50V
C205	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C206	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C207	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C208	1-124-248-00	ELECT	22uF	20%	35V
C209	1-126-096-11	ELECT	10uF	20%	35V
C210	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C211	1-124-589-11	ELECT	47uF	20%	16V
C212	1-124-589-11	ELECT	47uF	20%	16V
C213	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C215	1-163-035-00	CERAMIC CHIP	0.047uF		50V
⚠C216	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C217	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C218	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C220	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN201	1-506-483-21	PIN, CONNECTOR 4P			
CN202	1-506-486-11	PIN, CONNECTOR 7P			
CN203	1-506-487-11	PIN, CONNECTOR 8P			
CN204	1-506-486-11	PIN, CONNECTOR 7P			
CN205	1-506-485-11	PIN, CONNECTOR 6P			
		< DIODE >			
D201	8-719-210-39	DIODE	EC10QS-04		
D202	8-719-978-93	DIODE	DTZ30B-TT11		
D203	8-719-210-39	DIODE	EC10QS-04		
D204	8-719-105-73	DIODE	RD4.7M-B2		
D205	8-719-210-39	DIODE	EC10QS-04		
⚠D206	8-719-801-78	DIODE	1SS184		
		< FILTER >			
FL201	1-421-927-21	FILTER, NOISE			
		< IC >			
IC201	8-759-259-87	IC	MB89095PF-G-161		
IC202	8-759-074-40	IC	PST572DMT-T1		
		< JUMPER RESISTOR >			
JR001	1-216-296-91	METAL GLAZE	0	5%	1/8W

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L201	1-414-189-31	INDUCTOR 100uH			
L202	1-414-189-31	INDUCTOR 100uH			
		< FLUORECENT INDICATOR >			
ND201	1-517-161-11	INDICATOR TUBE, FLUORESCENT			
		< TRANSISTOR >			
Q201	8-729-207-72	TRANSISTOR	RN2406		
Q202	8-729-207-72	TRANSISTOR	RN2406		
Q203	8-729-140-97	TRANSISTOR	2SB734-34		
Q204	8-729-216-22	TRANSISTOR	2SA1162-G		
Q205	8-729-207-72	TRANSISTOR	RN2406		
Q206	8-729-207-72	TRANSISTOR	RN2406		
Q209	8-729-207-58	TRANSISTOR	RN1404		
		< RESISTOR >			
R201	1-216-037-00	METAL CHIP	330	5%	1/10W
R202	1-216-037-00	METAL CHIP	330	5%	1/10W
R203	1-216-009-00	METAL CHIP	22	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R206	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R207	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R208	1-216-081-00	METAL CHIP	22K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-073-00	METAL CHIP	10K	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R215	1-216-033-00	METAL CHIP	220	5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R217	1-216-049-00	METAL CHIP	1K	5%	1/10W
R218	1-216-073-00	METAL CHIP	10K	5%	1/10W
R219	1-216-033-00	METAL CHIP	220	5%	1/10W
R220	1-216-033-00	METAL CHIP	220	5%	1/10W
R221	1-216-049-00	METAL CHIP	1K	5%	1/10W
R222	1-216-073-00	METAL CHIP	10K	5%	1/10W
R223	1-216-033-00	METAL CHIP	220	5%	1/10W
R224	1-216-049-00	METAL CHIP	1K	5%	1/10W
R230	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
⚠R233	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R234	1-216-073-00	METAL CHIP	10K	5%	1/10W
⚠R235	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R236	1-216-049-00	METAL CHIP	1K	5%	1/10W
R237	1-216-049-00	METAL CHIP	1K	5%	1/10W
R238	1-216-033-00	METAL CHIP	220	5%	1/10W

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R239	1-216-033-00	METAL CHIP	220	5%	1/10W
R240	1-216-033-00	METAL CHIP	220	5%	1/10W
R243	1-216-075-00	METAL CHIP	12K	5%	1/10W
R244	1-216-073-00	METAL CHIP	10K	5%	1/10W
R245	1-216-075-00	METAL CHIP	12K	5%	1/10W
R246	1-216-075-00	METAL CHIP	12K	5%	1/10W
R248	1-216-017-00	METAL CHIP	47	5%	1/10W
R249	1-216-037-00	METAL CHIP	330	5%	1/10W
⚠R250	1-216-049-00	METAL CHIP	1K	5%	1/10W
⚠R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
⚠R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
		< SWITCH >			
S201	1-692-440-11	SWITCH, PUSH(DOOR SW)			
		< TRANSFORMER >			
T201	1-448-740-21	TRANSFORMER, DC-DC CONVERTER			
		< VIBRATOR >			
X202	1-579-223-11	OSCILLATOR, CERAMIC 8MHz			
**********					
*	A-6423-127-A	HP-715 BOARD, COMPLETE			
		**********			
		(Ref. No. 5,000 Seriese)			
		< CAPACITOR >			
C551	1-161-772-11	CERAMIC	0.1uF	10%	25V
C552	1-162-294-31	CERAMIC	0.001uF	10%	50V
C553	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
CN551	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D551	8-719-911-19	DIODE 1SS119			
D552	8-719-911-19	DIODE 1SS119			
		< FERRITE BEAD >			
FB551	1-410-396-41	INDUCTOR 0.45uH			
FB552	1-410-396-41	INDUCTOR 0.45uH			
FB553	1-410-396-41	INDUCTOR 0.45uH			
		< FILTER >			
FL551	1-236-071-11	ENCAPSULATED COMPONENT			
		< JACK >			
J551	1-568-151-21	JACK, LARGE TYPE(HEADPHONES)			

Ref. No.	Part No.	Description			Remarks
		< PIN >			
LP551	4-352-844-01	PIN, LEAD, COATING			
		< RESISTOR >			
R551	1-249-421-11	CARBON	2.2K	5%	1/4W F
R552	1-249-399-11	CARBON	33	5%	1/4W F
R553	1-249-399-11	CARBON	33	5%	1/4W F
R554	1-249-421-11	CARBON	2.2K	5%	1/4W F
		< VARIABLE RESISTOR >			
RV551	1-223-191-11	RES, VAR, CARBON 500/500(LEVEL)			
**********					
*	A-6423-134-A	MB-702 BOARD, COMPLETE (A2)			
		**********			
*	A-6423-132-A	MB-702 BOARD, COMPLETE (750)			
		**********			
		(Ref. No. 1,000 Seriese)			
	3-954-678-01	SHIELD (UPPER), MB			
	9-911-839-XX	CUSHION			
		< CAPACITOR >			
C001	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C003	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C004	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C005	1-124-126-00	ELECT	47uF	20%	16V
C006	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C007	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C008	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C009	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C010	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C011	1-126-177-11	ELECT	100uF	20%	10V
C012	1-126-177-11	ELECT	100uF	20%	10V
C013	1-126-177-11	ELECT	100uF	20%	10V
C014	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C015	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C017	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C018	1-126-177-11	ELECT	100uF	20%	10V
C019	1-126-154-11	ELECT	47uF	20%	6.3V
C020	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C021	1-126-157-11	ELECT	10uF	20%	16V
C022	1-126-157-11	ELECT	10uF	20%	16V
C023	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C024	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
C026	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C028	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C029	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C030	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C031	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C032	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C033	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C035	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C037	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C038	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C039	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C040	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C041	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C042	1-126-177-11	ELECT	100uF	20%	10V
C043	1-124-903-11	ELECT	1uF	20%	50V
C044	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C045	1-124-903-11	ELECT	1uF	20%	50V
C046	1-126-177-11	ELECT	100uF	20%	10V
C047	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C048	1-163-096-00	CERAMIC CHIP	13PF	5%	50V
C049	1-126-177-11	ELECT	100uF	20%	10V
C051	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C052	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C053	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C054	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C055	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C056	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C057	1-126-154-11	ELECT	47uF	20%	6.3V
C058	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C059	1-124-257-00	ELECT	2.2uF	20%	50V
C060	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C061	1-126-177-11	ELECT	100uF	20%	10V
C062	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C064	1-126-177-11	ELECT	100uF	20%	10V
C065	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C066	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C068	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C069	1-126-177-11	ELECT	100uF	20%	10V
C070	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C071	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C072	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C073	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C074	1-126-177-11	ELECT	100uF	20%	10V
C075	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C076	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C078	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C079	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C080	1-126-177-11	ELECT	100uF	20%	10V
C081	1-126-177-11	ELECT	100uF	20%	10V
C082	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C083	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C084	1-126-177-11	ELECT	100uF	20%	10V
C088	1-164-346-11	CERAMIC CHIP	1uF		16V
C095	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C096	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C097	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C099	1-124-126-00	ELECT	47uF	20%	16V
C100	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C101	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C102	1-124-126-00	ELECT	47uF	20%	16V
C103	1-124-464-11	ELECT	0.22uF	20%	50V
C104	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C105	1-124-589-11	ELECT	47uF	20%	16V
C106	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C107	1-124-126-00	ELECT	47uF	20%	16V
C108	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C109	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C111	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C112	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C113	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C114	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C115	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C116	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C117	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C118	1-126-177-11	ELECT	100uF	20%	10V
C119	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C120	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C121	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C122	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C125	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C126	1-124-257-00	ELECT	2.2uF	20%	50V
C127	1-124-257-00	ELECT	2.2uF	20%	50V
C128	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C129	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C130	1-126-177-11	ELECT	100uF	20%	10V
C131	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C133	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C134	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C135	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C136	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C137	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C138	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C139	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C140	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-126-177-11	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description			Remarks
C143	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C144	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C145	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C146	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C147	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C148	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C149	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C150	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C151	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C155	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C156	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C157	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C158	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C160	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C162	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C163	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C164	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C165	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C170	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C171	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C172	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C173	1-124-903-11	ELECT	1uF	20%	50V
C174	1-164-346-11	CERAMIC CHIP	1uF		16V
C175	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C176	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C201	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C202	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C203	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C204	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C205	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C206	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C207	1-124-126-00	ELECT	47uF	20%	16V
C208	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C209	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C210	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C211	1-124-126-00	ELECT	47uF	20%	16V
C212	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C213	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C214	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C215	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C217	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C218	1-124-126-00	ELECT	47uF	20%	16V
C219	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C220	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C221	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C222	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C223	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C224	1-126-177-11	ELECT	100uF	20%	10V
C225	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C226	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C227	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C228	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C229	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C230	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C231	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C232	1-124-126-00	ELECT	47uF	20%	16V
C233	1-124-927-11	ELECT	4.7uF	20%	100V
C234	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C235	1-124-126-00	ELECT	47uF	20%	16V
C236	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C238	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C239	1-124-287-00	ELECT	10uF	20%	10V
C240	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C241	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C242	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C243	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C244	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C245	1-124-126-00	ELECT	47uF	20%	16V
C246	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C247	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C248	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C249	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C250	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C251	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C252	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C253	1-124-126-00	ELECT	47uF	20%	16V
C254	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C255	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C256	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C257	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C258	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C259	1-104-540-11	FILM CHIP	0.0012uF	5%	50V
C260	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C261	1-104-540-11	FILM CHIP	0.0012uF	5%	50V
C262	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C263	1-130-495-00	MYLAR	0.1uF	5%	50V
C264	1-130-495-00	MYLAR	0.1uF	5%	50V
C265	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C266	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C267	1-130-495-00	MYLAR	0.1uF	5%	50V
C268	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C269	1-130-495-00	MYLAR	0.1uF	5%	50V
C270	1-126-022-11	ELECT	47uF	20%	16V
C271	1-126-022-11	ELECT	47uF	20%	16V
C272	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C273	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C274	1-126-022-11	ELECT	47uF	20%	16V
C275	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C276	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C277	1-126-022-11	ELECT	47uF	20%	16V
C278	1-126-022-11	ELECT	47uF	20%	16V
C279	1-126-022-11	ELECT	47uF	20%	16V
C280	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C281	1-124-126-00	ELECT	47uF	20%	16V
C282	1-124-126-00	ELECT	47uF	20%	16V
C283	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C289	1-124-126-00	ELECT	47uF	20%	16V
C290	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C291	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C292	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C293	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C294	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C295	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C296	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C297	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C298	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C299	1-126-947-11	ELECT	47uF	20%	35V
C300	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C302	1-126-177-11	ELECT	100uF	20%	10V
C303	1-126-177-11	ELECT	100uF	20%	10V
C307	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C308	1-124-927-11	ELECT	4.7uF	20%	100V
C327	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C329	1-124-903-11	ELECT	1uF	20%	50V
C330	1-124-903-11	ELECT	1uF	20%	50V
C331	1-104-541-11	FILM CHIP	0.0015uF	5%	50V
C332	1-104-541-11	FILM CHIP	0.0015uF	5%	50V
C333	1-104-541-11	FILM CHIP	0.0015uF	5%	50V
C334	1-104-541-11	FILM CHIP	0.0015uF	5%	50V
C335	1-124-997-11	ELECT	470uF	20%	10V
C399	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C401	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C402	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C403	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C405	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C407	1-124-277-11	ELECT	4.7uF	20%	35V
C408	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C409	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C410	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C411	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C413	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C414	1-124-767-00	ELECT	2.2uF	20%	50V
C415	1-163-014-00	CERAMIC CHIP	0.0027uF	5%	50V
C416	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C417	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C419	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C420	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C421	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C422	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C423	1-124-287-00	ELECT	10uF	20%	10V
C424	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C425	1-124-273-00	ELECT	3.3uF	20%	50V
C427	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C428	1-126-947-11	ELECT	47uF	20%	35V
C429	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C430	1-126-947-11	ELECT	47uF	20%	35V
C432	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C433	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C434	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C435	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C436	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C437	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C438	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C439	1-124-126-00	ELECT	47uF	20%	16V
C440	1-124-126-00	ELECT	47uF	20%	16V
C441	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C442	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C443	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C444	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C448	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C449	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C465	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C466	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C467	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C468	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C469	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C491	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C501	1-124-631-11	ELECT	47uF	20%	16V
C502	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C503	1-124-277-11	ELECT	4.7uF	20%	35V
C504	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C505	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C506	1-124-927-11	ELECT	4.7uF	20%	100V
C507	1-126-947-11	ELECT	47uF	20%	35V
C508	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C509	1-126-177-11	ELECT	100uF	20%	10V
C510	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C511	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C512	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C513	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C514	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C515	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C516	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C517	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C518	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C523	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C524	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C701	1-126-916-11	ELECT	1000uF	20%	6.3V
C702	1-126-916-11	ELECT	1000uF	20%	6.3V
C703	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C704	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C706	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C707	1-126-948-11	ELECT	100uF	20%	35V
C708	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C709	1-164-693-11	CERAMIC CHIP	0.0018uF	5%	50V
C710	1-124-927-11	ELECT	4.7uF	20%	100V
C711	1-126-916-11	ELECT	1000uF	20%	6.3V
C712	1-126-916-11	ELECT	1000uF	20%	6.3V
C718	1-126-948-11	ELECT	100uF	20%	35V
C801	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C802	1-164-232-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

* CN101	1-568-786-11	PIN, CONNECTOR 9P	
* CN102	1-568-790-11	PIN, CONNECTOR 13P	
* CN103	1-568-779-11	PIN, CONNECTOR 2P	
* CN104	1-568-779-11	PIN, CONNECTOR 2P	
CN201	1-506-468-11	PIN, CONNECTOR 3P	
CN203	1-506-470-11	PIN, CONNECTOR 5P	
CN206	1-506-469-11	PIN, CONNECTOR 4P	
CN401	1-750-687-11	HOUSING, CONNECTOR (PC BOARD)	
CN402	1-750-505-11	CONNECTOR, FPC 18P	
* CN403	1-691-503-11	CONNECTOR, FPC 14P	
CN501	1-506-468-11	PIN, CONNECTOR 3P	
CN502	1-506-469-11	PIN, CONNECTOR 4P	
CN503	1-506-472-11	PIN, CONNECTOR 7P	
CN504	1-506-473-11	PIN, CONNECTOR 8P	
CN505	1-506-473-11	PIN, CONNECTOR 8P	
* CN702	1-568-788-21	PIN, CONNECTOR 11P	

< TRIMMER >

CT001	1-141-442-91	TRIMMER, CERAMIC 20PF	

< DIODE >

D002	8-719-988-62	DIODE	1SS355
D003	8-719-988-62	DIODE	1SS355
D004	8-719-988-62	DIODE	1SS355
D006	8-719-801-78	DIODE	1SS184
D201	8-719-032-05	DIODE	KV1460TL00
D202	8-719-801-78	DIODE	1SS184
D203	8-719-104-34	DIODE	1S2836
D205	8-719-104-34	DIODE	1S2836
D206	8-719-104-34	DIODE	1S2836
D207	8-719-032-05	DIODE	KV1460TL00
D208	8-719-104-34	DIODE	1S2836
D209	8-719-401-92	DIODE	MA3082M-TX
D210	8-719-104-34	DIODE	1S2836
D213	8-719-801-78	DIODE	1SS184
D401	8-719-800-76	DIODE	1SS226
D402	8-719-800-76	DIODE	1SS226
D405	8-719-988-62	DIODE	1SS355
D407	8-719-800-76	DIODE	1SS226
D502	8-719-402-34	DIODE	MA3120-TX
D503	8-719-104-34	DIODE	1S2836
D504	8-719-400-75	DIODE	MA3091
D506	8-719-104-34	DIODE	1S2836
D507	8-719-104-34	DIODE	1S2836
D703	8-719-210-39	DIODE	EC10QS-04
D704	8-719-210-39	DIODE	EC10QS-04

< FERRITE BEAD >

FB203	1-412-390-21	INDUCTOR CHIP 0uH			
FB204	1-412-390-21	INDUCTOR CHIP 0uH			
FB205	1-412-390-21	INDUCTOR CHIP 0uH			
FB206	1-412-390-21	INDUCTOR CHIP 0uH			
FB207	1-412-390-21	INDUCTOR CHIP 0uH			
FB208	1-412-390-21	INDUCTOR CHIP 0uH			
FB209	1-412-390-21	INDUCTOR CHIP 0uH			
FB211	1-216-296-91	METAL GLAZE	0	5%	1/8W
FB212	1-410-370-31	INDUCTOR CHIP 1.2uH			
FB501	1-543-775-11	FILTER, EMI			
FB502	1-543-775-11	FILTER, EMI			
FB503	1-543-775-11	FILTER, EMI			
FB504	1-412-390-21	INDUCTOR CHIP 0uH			
FB505	1-412-390-21	INDUCTOR CHIP 0uH			
FB506	1-412-390-21	INDUCTOR CHIP 0uH			
FB507	1-412-390-21	INDUCTOR CHIP 0uH			
FB508	1-543-775-11	FILTER, EMI			

< FILTER >

FL001	1-239-319-11	FILTER, LOW PASS
FL002	1-236-843-11	FILTER, BAND PASS
FL005	1-239-557-11	LPF (5.5MHZ)
FL006	1-236-071-11	ENCAPSULATED COMPONENT
FL007	1-577-543-11	FILTER, CERAMIC
FL008	1-577-543-11	FILTER, CERAMIC
FL009	1-577-543-11	FILTER, CERAMIC
FL010	1-236-071-11	ENCAPSULATED COMPONENT
FL011	1-236-071-11	ENCAPSULATED COMPONENT
FL012	1-236-071-11	ENCAPSULATED COMPONENT
FL013	1-236-071-11	ENCAPSULATED COMPONENT
FL014	1-236-071-11	ENCAPSULATED COMPONENT
FL015	1-236-071-11	ENCAPSULATED COMPONENT
FL201	1-236-071-11	ENCAPSULATED COMPONENT
FL202	1-236-071-11	ENCAPSULATED COMPONENT
FL203	1-236-071-11	ENCAPSULATED COMPONENT
FL204	1-236-071-11	ENCAPSULATED COMPONENT
FL205	1-236-071-11	ENCAPSULATED COMPONENT
FL207	1-236-071-11	ENCAPSULATED COMPONENT
FL208	1-236-840-11	FILTER, BAND PASS

Ref. No.	Part No.	Description	Remarks
FL209	1-236-071-11	ENCAPSULATED COMPONENT	
FL210	1-236-071-11	ENCAPSULATED COMPONENT	
FL213	1-236-744-21	FILTER, EMI	
FL214	1-236-744-21	FILTER, EMI	
FL215	1-236-744-21	FILTER, EMI	
FL216	1-236-744-21	FILTER, EMI	
FL401	1-235-922-11	FILTER, LOW PASS (1.7MHz)	
FL501	1-236-744-21	FILTER, EMI	
		< IC >	
IC001	8-759-160-72	IC CXA8020AQ	
IC003	8-759-248-63	IC CXD8405AQ	
IC004	8-759-098-80	IC MB90085-123-EF	
IC005	8-759-063-27	IC CXD8404Q	
IC007	8-759-927-46	IC SN74HC00ANS	
IC201	8-749-921-12	IC GP1F32T(DIGITAL OUT)	
IC202	8-759-924-46	IC BA4560F	
IC203	8-759-098-82	IC YM7110	
IC204	8-752-342-65	IC CXD2560M	
IC205	8-759-924-46	IC BA4560F	
IC206	8-759-164-56	IC YSD221-ME2	
IC207	8-759-996-43	IC RC4558PS	
IC208	8-752-352-93	IC CXD2500BQ	
IC209	8-759-996-43	IC RC4558PS	
IC210	8-759-924-46	IC BA4560F	
IC211	8-759-996-43	IC RC4558PS	
IC212	8-759-996-43	IC RC4558PS	
IC213	8-759-996-43	IC RC4558PS	
IC214	8-752-351-19	IC CXD2561BM	
IC215	8-759-242-66	IC TC4W66F	
IC220	8-759-604-35	IC M5F78M05L	
IC222	8-759-031-84	IC SC7S04F	
IC223	8-759-083-94	IC TC7W74FU	
IC401	8-752-056-79	IC CXA1632Q	
IC402	8-759-048-30	IC LA6510L	
IC403	8-759-300-71	IC HD14053BFP	
IC404	8-759-300-71	IC HD14053BFP	
IC405	8-759-983-74	IC LM324NS	
IC406	8-759-996-43	IC RC4558PS	
IC407	8-759-996-43	IC RC4558PS	
IC409	8-759-996-43	IC RC4558PS	
IC410	8-759-242-64	IC TC4W53F	
IC501	8-759-259-88	IC MB89094PF-G-116	
IC502	8-759-098-78	IC MB606F06	
IC503	8-759-231-92	IC TA7291P	
IC504	8-759-983-74	IC LM324NS	
IC505	8-759-009-06	IC MC14052BF	
IC506	8-759-300-71	IC HD14053BFP	
⚠IC701	8-759-946-09	IC FA7611M	

Ref. No.	Part No.	Description	Remarks
		< JACK >	
J001	1-750-503-11	CONNECTOR, ROUND TYPE(S VIDEO OUT)	
J201	1-565-351-91	JACK, PIN 3P(LINE OUT 1)	
J202	1-565-351-91	JACK, PIN 3P(LINE OUT 2)	
J501	1-507-678-00	JACK(CONTROL S)	
		< JUMPER RESISTOR >	
JR018	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR200	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR203	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR207	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR208	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR401	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR502	1-216-295-00	METAL CHIP 0 5% 1/10W (A2)	
		< COIL >	
L001	1-414-186-31	INDUCTOR 33uH	
L002	1-414-185-41	INDUCTOR 22uH	
L003	1-414-184-41	INDUCTOR 15uH	
L004	1-408-414-00	INDUCTOR 27uH	
L005	1-414-186-31	INDUCTOR 33uH	
L006	1-414-186-31	INDUCTOR 33uH	
L007	1-410-423-11	INDUCTOR 22uH	
L008	1-414-186-31	INDUCTOR 33uH	
L009	1-410-381-11	INDUCTOR CHIP 10uH	
L010	1-410-381-11	INDUCTOR CHIP 10uH	
L011	1-414-186-31	INDUCTOR 33uH	
L013	1-414-186-31	INDUCTOR 33uH	
L018	1-410-391-11	INDUCTOR CHIP 68uH	
L020	1-408-412-00	INDUCTOR 18uH	
L201	1-414-189-31	INDUCTOR 100uH	
L202	1-414-187-11	INDUCTOR 47uH	
L203	1-408-418-00	INDUCTOR 56uH	
L204	1-414-180-11	INDUCTOR 3.3uH	
L401	1-414-183-41	INDUCTOR 10uH	
L402	1-414-183-41	INDUCTOR 10uH	
L403	1-414-183-41	INDUCTOR 10uH	
L404	1-414-183-41	INDUCTOR 10uH	
L501	1-414-183-41	INDUCTOR 10uH	
L502	1-408-765-21	INDUCTOR CHIP 1uH	
L701	1-424-219-21	COIL, CHOKE 300uH	
L702	1-410-339-11	COIL, CHOKE 10uH	
L703	1-414-183-41	INDUCTOR 10uH	
L704	1-424-219-11	COIL, CHOKE 300uH	
L705	1-410-339-11	COIL, CHOKE 10uH	
		< PIN >	
LP001	4-352-844-01	PIN, LEAD, COATING	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q001	8-729-216-22	TRANSISTOR 2SA1162-G	
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G	
Q004	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q005	8-729-207-58	TRANSISTOR RN1404	
Q006	8-729-216-22	TRANSISTOR 2SA1162-G	
Q007	8-729-216-22	TRANSISTOR 2SA1162-G	
Q008	8-729-900-53	TRANSISTOR DTC114EK	
Q009	8-729-216-22	TRANSISTOR 2SA1162-G	
Q010	8-729-216-22	TRANSISTOR 2SA1162-G	
Q011	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q012	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q013	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q014	8-729-216-22	TRANSISTOR 2SA1162-G	
Q015	8-729-216-22	TRANSISTOR 2SA1162-G	
Q016	8-729-216-22	TRANSISTOR 2SA1162-G	
Q017	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q018	8-729-216-22	TRANSISTOR 2SA1162-G	
Q019	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q020	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q023	8-729-216-22	TRANSISTOR 2SA1162-G	
Q024	8-729-216-22	TRANSISTOR 2SA1162-G	
Q025	8-729-216-22	TRANSISTOR 2SA1162-G	
Q026	8-729-216-22	TRANSISTOR 2SA1162-G	
Q027	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q028	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q030	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q031	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q032	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q033	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q034	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q035	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q039	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q040	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q041	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q042	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q201	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q202	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q203	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q204	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q205	8-729-207-68	TRANSISTOR RN2402	
Q206	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q207	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q208	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q209	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q210	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q211	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q212	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q213	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q214	8-729-202-38	TRANSISTOR 2SC3326N-A	

Ref. No.	Part No.	Description	Remarks
Q215	8-729-207-68	TRANSISTOR RN2402	
Q217	8-729-207-68	TRANSISTOR RN2402	
Q218	8-729-207-58	TRANSISTOR RN1404	
Q219	8-729-207-68	TRANSISTOR RN2402	
Q220	8-729-207-58	TRANSISTOR RN1404	
Q221	8-729-207-58	TRANSISTOR RN1404	
Q225	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q226	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q403	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q404	8-729-209-15	TRANSISTOR 2SD2012	
Q405	8-729-209-15	TRANSISTOR 2SD2012	
Q406	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q408	8-729-207-70	TRANSISTOR RN2404	
Q409	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q410	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q411	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q502	8-729-207-69	TRANSISTOR RN2403	
Q503	8-729-207-69	TRANSISTOR RN2403	
Q504	8-729-207-69	TRANSISTOR RN2403	
Q505	8-729-230-49	TRANSISTOR 2SC2712-YG	
⚠Q701	8-729-925-37	TRANSISTOR 2SB891	
⚠Q702	8-729-925-37	TRANSISTOR 2SB891	
		< RESISTOR >	
R001	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R002	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R003	1-216-047-00	METAL CHIP 820 5% 1/10W	
R004	1-216-043-00	METAL CHIP 560 5% 1/10W	
R005	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R006	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R007	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R008	1-216-035-00	METAL CHIP 270 5% 1/10W	
R009	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R010	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R011	1-216-064-00	METAL CHIP 4.3K 5% 1/10W	
R012	1-216-045-00	METAL CHIP 680 5% 1/10W	
R013	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R014	1-216-295-00	METAL CHIP 0 5% 1/10W	
R015	1-216-041-00	METAL CHIP 470 5% 1/10W	
R016	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R017	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R018	1-216-062-00	METAL CHIP 3.6K 5% 1/10W	
R019	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R020	1-216-037-00	METAL CHIP 330 5% 1/10W	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R021	1-216-049-00	METAL CHIP	1K	5%	1/10W
R022	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R023	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R024	1-216-073-00	METAL CHIP	10K	5%	1/10W
R025	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-295-00	METAL CHIP	0	5%	1/10W
R027	1-216-081-00	METAL CHIP	22K	5%	1/10W
R028	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R029	1-216-085-00	METAL CHIP	33K	5%	1/10W
R030	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R031	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R032	1-216-049-00	METAL CHIP	1K	5%	1/10W
R033	1-216-079-00	METAL CHIP	18K	5%	1/10W
R034	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R035	1-216-075-00	METAL CHIP	12K	5%	1/10W
R036	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R037	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R038	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R039	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R040	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R041	1-216-049-00	METAL CHIP	1K	5%	1/10W
R042	1-216-049-00	METAL CHIP	1K	5%	1/10W
R043	1-216-075-00	METAL CHIP	12K	5%	1/10W
R044	1-216-049-00	METAL CHIP	1K	5%	1/10W
R045	1-216-041-00	METAL CHIP	470	5%	1/10W
R046	1-216-049-00	METAL CHIP	1K	5%	1/10W
R047	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R048	1-216-045-00	METAL CHIP	680	5%	1/10W
R049	1-216-045-00	METAL CHIP	680	5%	1/10W
R050	1-216-049-00	METAL CHIP	1K	5%	1/10W
R051	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R052	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R053	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R054	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R055	1-216-049-00	METAL CHIP	1K	5%	1/10W
R056	1-216-073-00	METAL CHIP	10K	5%	1/10W
R057	1-216-045-00	METAL CHIP	680	5%	1/10W
R058	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R059	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R060	1-216-041-00	METAL CHIP	470	5%	1/10W
R061	1-216-049-00	METAL CHIP	1K	5%	1/10W
R062	1-216-049-00	METAL CHIP	1K	5%	1/10W
R063	1-216-031-00	METAL CHIP	180	5%	1/10W
R064	1-216-049-00	METAL CHIP	1K	5%	1/10W
R065	1-216-031-00	METAL CHIP	180	5%	1/10W
R066	1-208-805-91	METAL GLAZE	9.1K	0.50%	1/10W
R067	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R068	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R069	1-216-033-00	METAL CHIP	220	5%	1/10W
R070	1-216-037-00	METAL CHIP	330	5%	1/10W
R071	1-208-824-91	METAL GLAZE	56K	0.50%	1/10W
R072	1-216-295-00	METAL CHIP	0	5%	1/10W
R073	1-216-093-00	METAL CHIP	68K	5%	1/10W
R074	1-216-037-00	METAL CHIP	330	5%	1/10W
R075	1-216-041-00	METAL CHIP	470	5%	1/10W
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R077	1-216-041-00	METAL CHIP	470	5%	1/10W
R078	1-216-041-00	METAL CHIP	470	5%	1/10W
R079	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R080	1-216-046-00	METAL CHIP	750	5%	1/10W
R081	1-216-041-00	METAL CHIP	470	5%	1/10W
R082	1-216-047-00	METAL CHIP	820	5%	1/10W
R083	1-216-041-00	METAL CHIP	470	5%	1/10W
R084	1-216-041-00	METAL CHIP	470	5%	1/10W
R085	1-216-041-00	METAL CHIP	470	5%	1/10W
R087	1-216-041-00	METAL CHIP	470	5%	1/10W
R088	1-216-073-00	METAL CHIP	10K	5%	1/10W
R089	1-216-095-00	METAL CHIP	82K	5%	1/10W
R090	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R091	1-216-295-00	METAL CHIP	0	5%	1/10W
R092	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R093	1-216-119-00	METAL CHIP	820K	5%	1/10W
R095	1-216-041-00	METAL CHIP	470	5%	1/10W
R096	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R097	1-216-081-00	METAL CHIP	22K	5%	1/10W
R098	1-216-095-00	METAL CHIP	82K	5%	1/10W
R100	1-216-039-00	METAL CHIP	390	5%	1/10W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W
R102	1-216-041-00	METAL CHIP	470	5%	1/10W
R103	1-216-041-00	METAL CHIP	470	5%	1/10W
R104	1-216-041-00	METAL CHIP	470	5%	1/10W
R105	1-216-041-00	METAL CHIP	470	5%	1/10W
R106	1-216-041-00	METAL CHIP	470	5%	1/10W
R107	1-216-047-00	METAL CHIP	820	5%	1/10W
R108	1-216-041-00	METAL CHIP	470	5%	1/10W
R109	1-216-041-00	METAL CHIP	470	5%	1/10W
R110	1-216-295-00	METAL CHIP	0	5%	1/10W
R111	1-216-295-00	METAL CHIP	0	5%	1/10W
R112	1-216-037-00	METAL CHIP	330	5%	1/10W
R113	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R115	1-216-121-00	METAL CHIP	1M	5%	1/10W
R116	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R117	1-216-049-00	METAL CHIP	1K	5%	1/10W
R118	1-216-091-00	METAL CHIP	56K	5%	1/10W
R119	1-216-037-00	METAL CHIP	330	5%	1/10W
R120	1-216-031-00	METAL CHIP	180	5%	1/10W
R121	1-216-081-00	METAL CHIP	22K	5%	1/10W
R122	1-216-081-00	METAL CHIP	22K	5%	1/10W
R123	1-216-031-00	METAL CHIP	180	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R124	1-216-031-00	METAL CHIP	180	5%	1/10W
R125	1-216-081-00	METAL CHIP	22K	5%	1/10W
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W
R127	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R128	1-216-037-00	METAL CHIP	330	5%	1/10W
R129	1-216-043-00	METAL CHIP	560	5%	1/10W
R130	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R131	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R132	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R133	1-216-049-00	METAL CHIP	1K	5%	1/10W
R134	1-216-043-00	METAL CHIP	560	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R136	1-216-041-00	METAL CHIP	470	5%	1/10W
R138	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R139	1-216-041-00	METAL CHIP	470	5%	1/10W
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R141	1-216-041-00	METAL CHIP	470	5%	1/10W
R142	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R144	1-216-295-00	METAL CHIP	0	5%	1/10W
R145	1-216-049-00	METAL CHIP	1K	5%	1/10W
R146	1-216-113-00	METAL CHIP	470K	5%	1/10W
R147	1-216-021-00	METAL CHIP	68	5%	1/10W
R148	1-216-021-00	METAL CHIP	68	5%	1/10W
R149	1-216-041-00	METAL CHIP	470	5%	1/10W
R150	1-216-049-00	METAL CHIP	1K	5%	1/10W
R151	1-216-041-00	METAL CHIP	470	5%	1/10W
R152	1-216-041-00	METAL CHIP	470	5%	1/10W
R153	1-216-049-00	METAL CHIP	1K	5%	1/10W
R154	1-216-041-00	METAL CHIP	470	5%	1/10W
R155	1-216-021-00	METAL CHIP	68	5%	1/10W
R156	1-216-021-00	METAL CHIP	68	5%	1/10W
R157	1-216-041-00	METAL CHIP	470	5%	1/10W
R158	1-216-021-00	METAL CHIP	68	5%	1/10W
R159	1-216-049-00	METAL CHIP	1K	5%	1/10W
R161	1-216-021-00	METAL CHIP	68	5%	1/10W
R163	1-216-037-00	METAL CHIP	330	5%	1/10W
R164	1-216-021-00	METAL CHIP	68	5%	1/10W
R165	1-216-041-00	METAL CHIP	470	5%	1/10W
R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R167	1-216-021-00	METAL CHIP	68	5%	1/10W
R168	1-216-021-00	METAL CHIP	68	5%	1/10W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R170	1-216-049-00	METAL CHIP	1K	5%	1/10W
R171	1-216-021-00	METAL CHIP	68	5%	1/10W
R172	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R176	1-216-041-00	METAL CHIP	470	5%	1/10W
R184	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R186	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R187	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R192	1-216-049-00	METAL CHIP	1K	5%	1/10W
R194	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R195	1-216-041-00	METAL CHIP	470	5%	1/10W
R196	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R197	1-216-049-00	METAL CHIP	1K	5%	1/10W
R198	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R201	1-216-105-00	METAL CHIP	220K	5%	1/10W
R202	1-216-097-00	METAL CHIP	100K	5%	1/10W
R203	1-216-105-00	METAL CHIP	220K	5%	1/10W
R204	1-216-097-00	METAL CHIP	100K	5%	1/10W
R205	1-216-097-00	METAL CHIP	100K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-049-00	METAL CHIP	1K	5%	1/10W
R211	1-216-074-00	METAL CHIP	11K	5%	1/10W
R212	1-216-097-00	METAL CHIP	100K	5%	1/10W
R213	1-216-121-00	METAL CHIP	1M	5%	1/10W
R214	1-216-049-00	METAL CHIP	1K	5%	1/10W
R215	1-216-049-00	METAL CHIP	1K	5%	1/10W
R216	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R217	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R218	1-216-047-00	METAL CHIP	820	5%	1/10W
R219	1-216-049-00	METAL CHIP	1K	5%	1/10W
R220	1-216-013-00	METAL CHIP	33	5%	1/10W
R221	1-216-013-00	METAL CHIP	33	5%	1/10W
R222	1-216-047-00	METAL CHIP	820	5%	1/10W
R223	1-216-049-00	METAL CHIP	1K	5%	1/10W
R224	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R225	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R226	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R227	1-216-017-00	METAL CHIP	47	5%	1/10W
R228	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R229	1-216-021-00	METAL CHIP	68	5%	1/10W
R230	1-216-041-00	METAL CHIP	470	5%	1/10W
R231	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R232	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R233	1-216-049-00	METAL CHIP	1K	5%	1/10W
R235	1-216-049-00	METAL CHIP	1K	5%	1/10W
R236	1-216-041-00	METAL CHIP	470	5%	1/10W
R237	1-216-073-00	METAL CHIP	10K	5%	1/10W
R238	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R239	1-216-033-00	METAL CHIP	220	5%	1/10W
R240	1-216-025-00	METAL CHIP	100	5%	1/10W
R241	1-216-025-00	METAL CHIP	100	5%	1/10W
R242	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R243	1-216-037-00	METAL CHIP	330	5%	1/10W
R244	1-216-037-00	METAL CHIP	330	5%	1/10W
R245	1-216-037-00	METAL CHIP	330	5%	1/10W
R246	1-216-037-00	METAL CHIP	330	5%	1/10W
R247	1-216-049-00	METAL CHIP	1K	5%	1/10W
R248	1-216-073-00	METAL CHIP	10K	5%	1/10W
R249	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R250	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
R252	1-216-085-00	METAL CHIP	33K	5%	1/10W
R253	1-216-085-00	METAL CHIP	33K	5%	1/10W
R254	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R255	1-216-095-00	METAL CHIP	82K	5%	1/10W
R256	1-216-121-00	METAL CHIP	1M	5%	1/10W
R257	1-216-097-00	METAL CHIP	100K	5%	1/10W
R258	1-216-049-00	METAL CHIP	1K	5%	1/10W
R259	1-216-097-00	METAL CHIP	100K	5%	1/10W
R260	1-216-049-00	METAL CHIP	1K	5%	1/10W
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W
R262	1-216-097-00	METAL CHIP	100K	5%	1/10W
R263	1-216-049-00	METAL CHIP	1K	5%	1/10W
R264	1-216-037-00	METAL CHIP	330	5%	1/10W
R265	1-216-037-00	METAL CHIP	330	5%	1/10W
R266	1-216-037-00	METAL CHIP	330	5%	1/10W
R267	1-216-025-00	METAL CHIP	100	5%	1/10W
R268	1-216-049-00	METAL CHIP	1K	5%	1/10W
R269	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R270	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R271	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R272	1-216-077-00	METAL CHIP	15K	5%	1/10W
R273	1-216-077-00	METAL CHIP	15K	5%	1/10W
R274	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R275	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R276	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R277	1-216-091-00	METAL CHIP	56K	5%	1/10W
R278	1-216-091-00	METAL CHIP	56K	5%	1/10W
R279	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R280	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R281	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R282	1-216-077-00	METAL CHIP	15K	5%	1/10W
R283	1-216-077-00	METAL CHIP	15K	5%	1/10W
R284	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R285	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R286	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R287	1-216-091-00	METAL CHIP	56K	5%	1/10W
R288	1-216-091-00	METAL CHIP	56K	5%	1/10W
R289	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R290	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R291	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R292	1-216-053-00	METAL CHIP	1.5K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R293	1-216-105-00	METAL CHIP	220K	5%	1/10W
R294	1-216-049-00	METAL CHIP	1K	5%	1/10W
R295	1-216-049-00	METAL CHIP	1K	5%	1/10W
R296	1-216-105-00	METAL CHIP	220K	5%	1/10W
R297	1-216-049-00	METAL CHIP	1K	5%	1/10W
R298	1-216-049-00	METAL CHIP	1K	5%	1/10W
R299	1-216-047-00	METAL CHIP	820	5%	1/10W
R300	1-216-033-00	METAL CHIP	220	5%	1/10W
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-105-00	METAL CHIP	220K	5%	1/10W
R303	1-216-073-00	METAL CHIP	10K	5%	1/10W
R304	1-216-105-00	METAL CHIP	220K	5%	1/10W
R305	1-216-047-00	METAL CHIP	820	5%	1/10W
R306	1-216-033-00	METAL CHIP	220	5%	1/10W
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W
R308	1-216-049-00	METAL CHIP	1K	5%	1/10W
R309	1-216-047-00	METAL CHIP	820	5%	1/10W
R310	1-216-033-00	METAL CHIP	220	5%	1/10W
R311	1-216-073-00	METAL CHIP	10K	5%	1/10W
R312	1-216-105-00	METAL CHIP	220K	5%	1/10W
R313	1-216-073-00	METAL CHIP	10K	5%	1/10W
R314	1-216-105-00	METAL CHIP	220K	5%	1/10W
R315	1-216-047-00	METAL CHIP	820	5%	1/10W
R316	1-216-033-00	METAL CHIP	220	5%	1/10W
R317	1-216-049-00	METAL CHIP	1K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-073-00	METAL CHIP	10K	5%	1/10W
R320	1-216-049-00	METAL CHIP	1K	5%	1/10W
R321	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R322	1-216-049-00	METAL CHIP	1K	5%	1/10W
R323	1-216-105-00	METAL CHIP	220K	5%	1/10W
R324	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R325	1-216-033-00	METAL CHIP	220	5%	1/10W
R326	1-216-295-00	METAL CHIP	0	5%	1/10W
R327	1-216-296-91	METAL GLAZE	0	5%	1/8W
R328	1-216-296-91	METAL GLAZE	0	5%	1/8W
R329	1-216-073-00	METAL CHIP	10K	5%	1/10W
R330	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R331	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R332	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R333	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R334	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W
R336	1-216-045-00	METAL CHIP	680	5%	1/10W
R337	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R338	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R339	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R340	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R341	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R342	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R343	1-216-045-00	METAL CHIP	680	5%	1/10W
R344	1-216-105-00	METAL CHIP	220K	5%	1/10W
R345	1-216-097-00	METAL CHIP	100K	5%	1/10W
R346	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R355	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R357	1-216-295-00	METAL CHIP	0	5%	1/10W
R358	1-216-295-00	METAL CHIP	0	5%	1/10W
R369	1-216-025-00	METAL CHIP	100	5%	1/10W
R375	1-216-025-00	METAL CHIP	100	5%	1/10W
R376	1-216-025-00	METAL CHIP	100	5%	1/10W
R378	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R379	1-216-077-00	METAL CHIP	15K	5%	1/10W
R380	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R381	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W
R385	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R402	1-216-045-00	METAL CHIP	680	5%	1/10W
R403	1-216-045-00	METAL CHIP	680	5%	1/10W
R404	1-216-107-00	METAL CHIP	270K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-099-00	METAL CHIP	120K	5%	1/10W
R407	1-216-075-00	METAL CHIP	12K	5%	1/10W
R408	1-216-083-00	METAL CHIP	27K	5%	1/10W
R409	1-216-049-00	METAL CHIP	1K	5%	1/10W
R410	1-216-101-00	METAL CHIP	150K	5%	1/10W
R411	1-216-077-00	METAL CHIP	15K	5%	1/10W
R412	1-216-101-00	METAL CHIP	150K	5%	1/10W
R413	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R414	1-216-075-00	METAL CHIP	12K	5%	1/10W
R415	1-216-085-00	METAL CHIP	33K	5%	1/10W
R416	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R417	1-216-097-00	METAL CHIP	100K	5%	1/10W
R418	1-216-091-00	METAL CHIP	56K	5%	1/10W
R419	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R420	1-216-085-00	METAL CHIP	33K	5%	1/10W
R421	1-216-097-00	METAL CHIP	100K	5%	1/10W
R422	1-216-097-00	METAL CHIP	100K	5%	1/10W
R423	1-216-101-00	METAL CHIP	150K	5%	1/10W
R424	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R425	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R426	1-216-097-00	METAL CHIP	100K	5%	1/10W
R427	1-216-099-00	METAL CHIP	120K	5%	1/10W
R428	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R429	1-216-109-00	METAL CHIP	330K	5%	1/10W
R430	1-216-097-00	METAL CHIP	100K	5%	1/10W
R431	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R432	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R433	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R434	1-216-097-00	METAL CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R435	1-216-073-00	METAL CHIP	10K	5%	1/10W
R436	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R437	1-216-077-00	METAL CHIP	15K	5%	1/10W
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W
R439	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R440	1-216-049-00	METAL CHIP	1K	5%	1/10W
R441	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R442	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R443	1-216-085-00	METAL CHIP	33K	5%	1/10W
R444	1-216-033-00	METAL CHIP	220	5%	1/10W
R445	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R446	1-216-081-00	METAL CHIP	22K	5%	1/10W
R447	1-216-081-00	METAL CHIP	22K	5%	1/10W
R448	1-216-092-00	METAL GLAZE	62K	5%	1/10W
R449	1-216-113-00	METAL CHIP	470K	5%	1/10W
R450	1-216-073-00	METAL CHIP	10K	5%	1/10W
R451	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R452	1-216-073-00	METAL CHIP	10K	5%	1/10W
R453	1-216-085-00	METAL CHIP	33K	5%	1/10W
R454	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R455	1-216-097-00	METAL CHIP	100K	5%	1/10W
R456	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R457	1-216-073-00	METAL CHIP	10K	5%	1/10W
R458	1-216-073-00	METAL CHIP	10K	5%	1/10W
R459	1-216-049-00	METAL CHIP	1K	5%	1/10W
R460	1-216-075-00	METAL CHIP	12K	5%	1/10W
R461	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R462	1-216-085-00	METAL CHIP	33K	5%	1/10W
R463	1-216-077-00	METAL CHIP	15K	5%	1/10W
R464	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R465	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R466	1-216-081-00	METAL CHIP	22K	5%	1/10W
R467	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R468	1-216-081-00	METAL CHIP	22K	5%	1/10W
R469	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R472	1-216-017-00	METAL CHIP	47	5%	1/10W
R473	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R474	1-216-003-11	METAL GLAZE	12	5%	1/10W
R475	1-216-081-00	METAL CHIP	22K	5%	1/10W
R476	1-249-387-11	CARBON	3.3	5%	1/4W F
R477	1-216-079-00	METAL CHIP	18K	5%	1/10W
R478	1-216-109-00	METAL CHIP	330K	5%	1/10W
R479	1-216-093-00	METAL CHIP	68K	5%	1/10W
R480	1-216-095-00	METAL CHIP	82K	5%	1/10W
R481	1-216-369-00	METAL OXIDE	1	5%	2W F
R482	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R483	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R487	1-216-093-00	METAL CHIP	68K	5%	1/10W
R488	1-216-095-00	METAL CHIP	82K	5%	1/10W
R489	1-216-109-00	METAL CHIP	330K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R490	1-216-097-00	METAL CHIP	100K	5%	1/10W
R491	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R494	1-216-079-00	METAL CHIP	18K	5%	1/10W
R495	1-216-079-00	METAL CHIP	18K	5%	1/10W
R496	1-216-099-00	METAL CHIP	120K	5%	1/10W
R497	1-216-099-00	METAL CHIP	120K	5%	1/10W
R498	1-216-077-00	METAL CHIP	15K	5%	1/10W
R499	1-216-099-00	METAL CHIP	120K	5%	1/10W
R501	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R502	1-216-111-00	METAL CHIP	390K	5%	1/10W
R503	1-216-113-00	METAL CHIP	470K	5%	1/10W
R504	1-208-808-91	METAL GLAZE	12K	0.50%	1/10W
R505	1-216-035-00	METAL CHIP	270	5%	1/10W
R506	1-208-810-91	METAL GLAZE	15K	0.50%	1/10W
R507	1-208-844-91	METAL GLAZE	390K	0.50%	1/10W
R508	1-216-049-00	METAL CHIP	1K	5%	1/10W
R509	1-208-816-91	METAL GLAZE	27K	0.50%	1/10W
R510	1-208-838-91	METAL GLAZE	220K	0.50%	1/10W
R511	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R512	1-208-818-91	METAL GLAZE	33K	0.50%	1/10W
R513	1-208-830-91	METAL GLAZE	100K	0.50%	1/10W
R514	1-208-810-91	METAL GLAZE	15K	0.50%	1/10W
R515	1-208-818-91	METAL GLAZE	33K	0.50%	1/10W
R516	1-216-085-00	METAL CHIP	33K	5%	1/10W
R517	1-216-105-00	METAL CHIP	220K	5%	1/10W
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R520	1-216-073-00	METAL CHIP	10K	5%	1/10W
R521	1-216-045-00	METAL CHIP	680	5%	1/10W
R522	1-216-105-00	METAL CHIP	220K	5%	1/10W
R523	1-216-033-00	METAL CHIP	220	5%	1/10W
R524	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R525	1-216-073-00	METAL CHIP	10K	5%	1/10W
R526	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R527	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R528	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R529	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R530	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R531	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R532	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
⚠R533	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
R534	1-216-105-00	METAL CHIP	220K	5%	1/10W
R535	1-216-093-00	METAL CHIP	68K	5%	1/10W
R536	1-216-095-00	METAL CHIP	82K	5%	1/10W
R537	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R538	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R539	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R540	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R542	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R543	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R544	1-216-049-00	METAL CHIP	1K	5%	1/10W
R546	1-216-049-00	METAL CHIP	1K	5%	1/10W
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W
R548	1-216-073-00	METAL CHIP	10K	5%	1/10W
R549	1-216-105-00	METAL CHIP	220K	5%	1/10W
R550	1-216-035-00	METAL CHIP	270	5%	1/10W
R551	1-216-121-00	METAL CHIP	1M	5%	1/10W
R552	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R553	1-216-013-00	METAL CHIP	33	5%	1/10W
R554	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R555	1-216-035-00	METAL CHIP	270	5%	1/10W
R556	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R557	1-216-081-00	METAL CHIP	22K	5%	1/10W
R558	1-216-021-00	METAL CHIP	68	5%	1/10W
R559	1-216-097-00	METAL CHIP	100K	5%	1/10W
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W
R564	1-216-049-00	METAL CHIP	1K	5%	1/10W
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W
R567	1-216-049-00	METAL CHIP	1K	5%	1/10W
R568	1-216-049-00	METAL CHIP	1K	5%	1/10W
R569	1-216-049-00	METAL CHIP	1K	5%	1/10W
R570	1-216-049-00	METAL CHIP	1K	5%	1/10W
R571	1-216-049-00	METAL CHIP	1K	5%	1/10W
R572	1-216-049-00	METAL CHIP	1K	5%	1/10W
R573	1-216-049-00	METAL CHIP	1K	5%	1/10W
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W
R576	1-216-049-00	METAL CHIP	1K	5%	1/10W
R577	1-216-049-00	METAL CHIP	1K	5%	1/10W
R578	1-216-049-00	METAL CHIP	1K	5%	1/10W
R579	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W
R581	1-216-049-00	METAL CHIP	1K	5%	1/10W
R582	1-216-049-00	METAL CHIP	1K	5%	1/10W
R583	1-216-049-00	METAL CHIP	1K	5%	1/10W
R585	1-216-049-00	METAL CHIP	1K	5%	1/10W
R586	1-216-049-00	METAL CHIP	1K	5%	1/10W
R587	1-216-049-00	METAL CHIP	1K	5%	1/10W
R588	1-216-049-00	METAL CHIP	1K	5%	1/10W
R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R590	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R591	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R592	1-216-049-00	METAL CHIP	1K	5%	1/10W
R593	1-216-049-00	METAL CHIP	1K	5%	1/10W
R594	1-216-049-00	METAL CHIP	1K	5%	1/10W
R595	1-216-049-00	METAL CHIP	1K	5%	1/10W
R596	1-216-049-00	METAL CHIP	1K	5%	1/10W
R597	1-216-049-00	METAL CHIP	1K	5%	1/10W
R598	1-216-049-00	METAL CHIP	1K	5%	1/10W
R599	1-216-049-00	METAL CHIP	1K	5%	1/10W

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R601	1-216-049-00	METAL CHIP	1K	5%	1/10W
R603	1-216-049-00	METAL CHIP	1K	5%	1/10W
R604	1-216-049-00	METAL CHIP	1K	5%	1/10W
R605	1-216-049-00	METAL CHIP	1K	5%	1/10W
R606	1-216-049-00	METAL CHIP	1K	5%	1/10W
R607	1-216-049-00	METAL CHIP	1K	5%	1/10W
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W
R610	1-216-049-00	METAL CHIP	1K	5%	1/10W
R611	1-216-049-00	METAL CHIP	1K	5%	1/10W
R612	1-216-049-00	METAL CHIP	1K	5%	1/10W
R613	1-216-049-00	METAL CHIP	1K	5%	1/10W
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W
R615	1-216-049-00	METAL CHIP	1K	5%	1/10W
R616	1-216-049-00	METAL CHIP	1K	5%	1/10W
R617	1-216-049-00	METAL CHIP	1K	5%	1/10W
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W
R624	1-216-049-00	METAL CHIP	1K	5%	1/10W
R625	1-216-049-00	METAL CHIP	1K	5%	1/10W
R626	1-216-049-00	METAL CHIP	1K	5%	1/10W
R627	1-216-295-00	METAL CHIP	0	5%	1/10W
R628	1-216-041-00	METAL CHIP	470	5%	1/10W
R629	1-216-295-00	METAL CHIP	0	5%	1/10W
R630	1-216-295-00	METAL CHIP	0	5%	1/10W
R631	1-216-295-00	METAL CHIP	0	5%	1/10W
R632	1-216-049-00	METAL CHIP	1K	5%	1/10W
R633	1-216-097-00	METAL CHIP	100K	5%	1/10W
R634	1-216-073-00	METAL CHIP	10K	5%	1/10W
R635	1-216-049-00	METAL CHIP	1K	5%	1/10W
R636	1-216-049-00	METAL CHIP	1K	5%	1/10W
R637	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R638	1-216-081-00	METAL CHIP	22K	5%	1/10W
R639	1-216-081-00	METAL CHIP	22K	5%	1/10W
R642	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R643	1-216-049-00	METAL CHIP	1K	5%	1/10W
R644	1-216-049-00	METAL CHIP	1K	5%	1/10W
R701	1-208-790-91	METAL GLAZE	2.2K	0.50%	1/10W
R702	1-208-814-91	METAL GLAZE	22K	0.50%	1/10W
R703	1-216-035-00	METAL CHIP	270	5%	1/10W
R704	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R705	1-216-043-00	METAL CHIP	560	5%	1/10W
R706	1-216-043-00	METAL CHIP	560	5%	1/10W
R707	1-216-091-00	METAL CHIP	56K	5%	1/10W
R708	1-216-109-00	METAL CHIP	330K	5%	1/10W
R709	1-216-119-00	METAL CHIP	820K	5%	1/10W
R710	1-216-043-00	METAL CHIP	560	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R711	1-208-830-91	METAL GLAZE	100K	0.50%	1/10W
R712	1-208-814-91	METAL GLAZE	22K	0.50%	1/10W
R713	1-208-794-91	METAL GLAZE	3.3K	0.50%	1/10W
R714	1-208-805-91	METAL GLAZE	9.1K	0.50%	1/10W
R715	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R716	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R717	1-216-029-00	METAL CHIP	150	5%	1/10W
R801	1-216-105-00	METAL CHIP	220K	5%	1/10W
R802	1-216-105-00	METAL CHIP	220K	5%	1/10W
R803	1-216-295-00	METAL CHIP	0	5%	1/10W
R804	1-216-097-00	METAL CHIP	100K	5%	1/10W
R805	1-216-117-00	METAL CHIP	680K	5%	1/10W
R806	1-216-085-00	METAL CHIP	33K	5%	1/10W
R807	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R808	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R809	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R810	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R812	1-216-295-00	METAL CHIP	0	5%	1/10W
R813	1-216-295-00	METAL CHIP	0	5%	1/10W
R814	1-216-295-00	METAL CHIP	0	5%	1/10W

< VARIABLE RESISTOR >

RV001	1-241-081-11	RES, ADJ, CARBON 22K
RV401	1-241-083-11	RES, ADJ, CARBON 47K
RV402	1-241-083-11	RES, ADJ, CARBON 47K

< SWITCH >

S201	1-553-725-21	SWITCH, SLIDE (ATT)

< TRANSFORMER >

T201	1-406-647-11	COIL

< VIBRATOR >

X001	1-579-617-11	VIBRATOR, CRYSTAL 28.1958MHz
X201	1-579-618-11	VIBRATOR, CRYSTAL 22.5MHz

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A-6421-956-A MD-703 BOARD, COMPLETE

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(Ref. No. 2,000 Seriese)

3-953-262-01 HOLDER, LED

< CAPACITOR >

C431	1-126-947-11	ELECT	47uF	20%	35V

< CONNECTOR >

* CN431	1-691-503-11	CONNECTOR, FPC 14P
CN432	1-506-470-11	PIN, CONNECTOR 5P
CN433	1-564-014-11	PIN, CONNECTOR 4P
CN434	1-506-468-11	PIN, CONNECTOR 3P

Ref. No.	Part No.	Description			Remarks
		< DIODE >			
D431	8-719-912-39	LED SLR932A			
D432	8-729-020-74	DIODE GP1S24			
D433	8-729-020-74	DIODE GP1S24			
D434	8-729-020-74	DIODE GP1S24			
		< IC >			
IC431	8-759-927-46	IC SN74HC00ANS			
		< JUMPER RESISTOR >			
JR413	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR414	1-216-295-00	METAL CHIP	0	5%	1/10W
JR431	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR432	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR433	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR435	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR437	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR438	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR439	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR440	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR441	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR442	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR443	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR444	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR445	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR446	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR447	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR448	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR449	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR450	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR451	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR452	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR453	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR454	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR455	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR456	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR457	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR458	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR460	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR461	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< PIN >			
LP431	4-352-844-01	PIN, LEAD, COATING			
LP432	4-352-844-01	PIN, LEAD, COATING			
		< RESISTOR >			
R431	1-216-033-00	METAL CHIP	220	5%	1/10W
R432	1-216-049-00	METAL CHIP	1K	5%	1/10W
R433	1-216-049-00	METAL CHIP	1K	5%	1/10W
R434	1-216-045-00	METAL CHIP	680	5%	1/10W
R435	1-216-099-00	METAL CHIP	120K	5%	1/10W
R436	1-216-039-00	METAL CHIP	390	5%	1/10W
R437	1-216-099-00	METAL CHIP	120K	5%	1/10W
R438	1-216-095-00	METAL CHIP	82K	5%	1/10W
R439	1-216-095-00	METAL CHIP	82K	5%	1/10W
		< SWITCH >			
S431	1-692-440-11	SWITCH, PUSH(TILT)			

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A-6423-049-A ME-703 BOARD, COMPLETE

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(Ref. No. 1,000 Seriese)

		< CAPACITOR >			
C789	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C790	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C791	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C792	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C793	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C795	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C796	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
		< CONNECTOR >			
CN791	1-569-335-11	CONNECTOR, BOARD TO BOARD 9P			
CN792	1-764-179-11	CONNECTOR, BOARD TO BOARD 13P			
CN793	1-573-538-11	CONNECTOR, BOARD TO BOARD 8P			
		< FERRITE BEAD >			
FB783	1-414-135-11	INDUCTOR CHIP 0UH			
FB784	1-414-135-11	INDUCTOR CHIP 0UH			
FB785	1-414-135-11	INDUCTOR CHIP 0UH			
FB786	1-414-135-11	INDUCTOR CHIP 0UH			
FB787	1-414-135-11	INDUCTOR CHIP 0UH			
FB789	1-414-135-11	INDUCTOR CHIP 0UH			
FB790	1-414-135-11	INDUCTOR CHIP 0UH			
FB791	1-414-135-11	INDUCTOR CHIP 0UH			
FB792	1-414-135-11	INDUCTOR CHIP 0UH			
FB793	1-414-135-11	INDUCTOR CHIP 0UH			
FB794	1-414-135-11	INDUCTOR CHIP 0UH			
FB795	1-414-135-11	INDUCTOR CHIP 0UH			
FB796	1-414-135-11	INDUCTOR CHIP 0UH			
FB797	1-414-135-11	INDUCTOR CHIP 0UH			
FB798	1-414-135-11	INDUCTOR CHIP 0UH			
FB799	1-414-135-11	INDUCTOR CHIP 0UH			
		< FILTER >			
FL791	1-236-071-11	ENCAPSULATED COMPONENT			
FL792	1-236-071-11	ENCAPSULATED COMPONENT			
FL793	1-236-071-11	ENCAPSULATED COMPONENT			

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC791	8-759-081-65	IC MSM7H007-023GS-VK			
IC792	8-759-172-96	IC MSM518221-30JS-R1			
		< RESISTOR >			
R776	1-216-295-00	METAL CHIP	0	5%	1/10W
R777	1-216-049-00	METAL CHIP	1K	5%	1/10W
R779	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R782	1-216-113-00	METAL CHIP	470K	5%	1/10W
R783	1-216-113-00	METAL CHIP	470K	5%	1/10W
R784	1-216-045-00	METAL CHIP	680	5%	1/10W
R785	1-216-045-00	METAL CHIP	680	5%	1/10W
R786	1-216-045-00	METAL CHIP	680	5%	1/10W
R787	1-216-045-00	METAL CHIP	680	5%	1/10W
R788	1-216-045-00	METAL CHIP	680	5%	1/10W
R789	1-216-045-00	METAL CHIP	680	5%	1/10W
R790	1-216-045-00	METAL CHIP	680	5%	1/10W
R791	1-216-045-00	METAL CHIP	680	5%	1/10W
R792	1-216-045-00	METAL CHIP	680	5%	1/10W
R793	1-216-045-00	METAL CHIP	680	5%	1/10W
R794	1-216-045-00	METAL CHIP	680	5%	1/10W
R795	1-216-045-00	METAL CHIP	680	5%	1/10W
R796	1-216-045-00	METAL CHIP	680	5%	1/10W
R797	1-216-045-00	METAL CHIP	680	5%	1/10W
R798	1-216-045-00	METAL CHIP	680	5%	1/10W
R799	1-216-045-00	METAL CHIP	680	5%	1/10W
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*	A-6423-128-A	MI-701 BOARD, COMPLETE			
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		(Ref. No. 4,000 Seriese)			
		< CAPACITOR >			
C501	1-126-160-11	ELECT	1uF	20%	50V
C502	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C503	1-126-160-11	ELECT	1uF	20%	50V
C504	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C505	1-126-163-11	ELECT	4.7uF	20%	50V
C506	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C507	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C508	1-126-163-11	ELECT	4.7uF	20%	50V
C509	1-124-584-00	ELECT	100uF	20%	10V
C510	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C511	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C512	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C513	1-162-638-11	CERAMIC CHIP	1uF		16V
C514	1-124-584-00	ELECT	100uF	20%	10V
C515	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C516	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C517	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C518	1-162-638-11	CERAMIC CHIP	1uF		16V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-124-589-11	ELECT	47uF	20%	16V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C523	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C524	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C525	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C526	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C527	1-162-638-11	CERAMIC CHIP	1uF		16V
C528	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C529	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C530	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C531	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C532	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C533	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C534	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C535	1-124-589-11	ELECT	47uF	20%	16V
C536	1-124-589-11	ELECT	47uF	20%	16V
C537	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN501	1-506-470-11	PIN, CONNECTOR 5P			
		< DIODE >			
D501	8-719-800-76	DIODE ISS226			
		< FERRITE BEAD >			
FB501	1-410-991-11	INDUCTOR CHIP 0.68uH			
FB503	1-543-775-11	FILTER, EMI			
		< FILTER >			
FL501	1-236-728-11	ENCAPSULATED COMPONENT			
FL502	1-236-728-11	ENCAPSULATED COMPONENT			
		< IC >			
IC501	8-759-053-14	IC M65831FP-600C			
IC502	8-759-636-55	IC M5218AFP			
IC503	8-759-924-46	IC BA4560F			
IC504	8-759-630-34	IC M5278L05M			
		< JACK >			
J501	1-569-112-31	JACK, LARGE TYPE(MIC)			
		< JUMPER RESISTOR >			
JR502	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L501	1-414-189-31	INDUCTOR	100uH		
		< RESISTOR >			
R501	1-216-025-00	METAL CHIP	100	5% 1/10W	
R502	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R503	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R504	1-216-055-00	METAL CHIP	1.8K	5% 1/10W	
R505	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R506	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R507	1-216-067-00	METAL CHIP	5.6K	5% 1/10W	
R508	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R509	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R510	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R511	1-216-121-00	METAL CHIP	1M	5% 1/10W	
R512	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R513	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R514	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R515	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R516	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R517	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R518	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R519	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R520	1-216-057-00	METAL CHIP	2.2K	5% 1/10W	
R521	1-216-059-00	METAL CHIP	2.7K	5% 1/10W	
R522	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R523	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R524	1-216-009-00	METAL CHIP	22	5% 1/10W	
R525	1-216-009-00	METAL CHIP	22	5% 1/10W	
		< VARIABLE RESISTOR >			
RV501	1-223-190-11	RES, VAR, CARBON 10K/10K(LEVEL)			
		< VIBRATOR >			
X501	1-577-260-21	VIBRATOR, CERAMIC 2MHz			
**********					
	A-6421-953-A	MT-702 BOARD, COMPLETE			
		**********			
					(Ref. No. 3,000 Seriese)
		< CAPACITOR >			
C471	1-161-063-00	CERAMIC	0.1uF	10% 50V	
		< CONNECTOR >			
* CN471	1-695-105-11	PIN, CONNECTOR (PC BOARD) 3P BOARD			
**********					

Ref. No.	Part No.	Description			Remarks
*	A-6423-135-A	PS-713 BOARD, COMPLETE (A2)			
		**********			
*	A-6423-126-A	PS-713 BOARD, COMPLETE (750)			
		**********			
					(Ref. No. 6,000 Seriese)
⚠	1-533-189-11	HOLDER, FUSE			
		< CAPACITOR >			
C031	1-126-948-11	ELECT	100uF	20% 35V	
C032	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
C033	1-126-948-11	ELECT	100uF	20% 35V	
C034	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
C035	1-126-941-11	ELECT	470uF	20% 25V	
C036	1-126-944-11	ELECT	3300uF	20% 25V	
C037	1-126-946-11	ELECT	6800uF	20% 25V	
C038	1-126-944-11	ELECT	3300uF	20% 25V	
C039	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C040	1-126-103-11	ELECT	470uF	20% 16V	
C041	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C042	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C043	1-126-103-11	ELECT	470uF	20% 16V	
C044	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C045	1-124-563-11	ELECT	2200uF	20% 25V	
C047	1-124-557-11	ELECT	1000uF	20% 25V	
C051	1-163-009-11	CERAMIC CHIP	0.001uF	10% 50V	
C052	1-163-019-00	CERAMIC CHIP	0.0068uF	10% 50V	
C054	1-163-009-11	CERAMIC CHIP	0.001uF	10% 50V	
C055	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	
C056	1-163-007-11	CERAMIC CHIP	680PF	10% 50V	
C058	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C059	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	
C060	1-163-007-11	CERAMIC CHIP	680PF	10% 50V	
C061	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	
C062	1-163-009-11	CERAMIC CHIP	0.001uF	10% 50V	
C063	1-124-122-11	ELECT	100uF	20% 50V	
C064	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
		< CONNECTOR >			
* CN030	1-564-029-00	PIN, CONNECTOR 4P			
CN031	1-506-483-21	PIN, CONNECTOR 4P			
CN051	1-506-490-21	PIN, CONNECTOR 11P			
CN052	1-564-506-11	PLUG, CONNECTOR 3P			
CN053	1-506-483-21	PIN, CONNECTOR 4P			
		< DIODE >			
⚠D031	8-719-200-82	DIODE	11ES2		
⚠D032	8-719-200-82	DIODE	11ES2		
D033	8-719-911-19	DIODE	1SS119		
⚠D034	8-719-025-17	DIODE	D3SBA10-4100		
⚠D035	8-719-200-82	DIODE	11ES2		

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description		Remarks
⚠D036	8-719-980-78	DIODE	ERA83-006	
⚠D037	8-719-980-78	DIODE	ERA83-006	
⚠D038	8-719-980-78	DIODE	ERA83-006	
⚠D039	8-719-980-78	DIODE	ERA83-006	
D051	8-719-980-78	DIODE	ERA83-006	
D052	8-719-980-78	DIODE	ERA83-006	
D053	8-719-200-82	DIODE	11ES2	
D054	8-719-200-82	DIODE	11ES2	
D055	8-719-911-19	DIODE	1SS119	
D056	8-719-911-19	DIODE	1SS119	
D057	8-719-911-19	DIODE	1SS119	
D058	8-719-109-85	DIODE	RD5.1ESB2	
D059	8-719-109-75	DIODE	RD4.3ESB2	
D060	8-719-911-19	DIODE	1SS119	
⚠D061	8-719-503-40	DIODE	S3V40	
		< FUSE >		
⚠F053	1-532-780-21	FUSE, MICRO (2.5A 125V)(750)		
⚠F054	1-532-780-21	FUSE, MICRO (2.5A 125V)(750)		
		< IC >		
⚠IC031	8-759-231-53	IC	TA7805S	
⚠IC032	8-759-701-58	IC	NJM78M08FA	
⚠IC033	8-759-700-22	IC	NJM79M08A	
IC051	8-759-100-93	IC	uPC393G2	
IC052	8-759-996-43	IC	RC4558PS	
		< COIL >		
⚠L031	1-410-521-11	INDUCTOR 100uH		
L051	1-424-219-11	COIL, CHOKE 300uH		
		< PIN >		
LP033	4-352-844-01	PIN, LEAD, COATING		
		< IC LINK >		
⚠PS051	1-532-675-00	LINK, IC 1.5A(ICP-N38)		
⚠PS052	1-532-675-00	LINK, IC 1.5A(ICP-N38)		
⚠PS053	1-532-843-21	LINK, IC (A2)		
⚠PS054	1-532-843-21	LINK, IC (A2)		
		< TRANSISTOR >		
Q031	8-729-141-75	TRANSISTOR	2SD596DV345	
⚠Q051	8-729-117-11	TRANSISTOR	2SB1151-L	
⚠Q052	8-729-019-31	TRANSISTOR	2SC4596E	
⚠Q053	8-729-117-11	TRANSISTOR	2SB1151-L	
⚠Q054	8-729-019-31	TRANSISTOR	2SC4596E	
Q055	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q056	8-729-216-22	TRANSISTOR	2SA1162-G	
Q058	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q059	8-729-216-22	TRANSISTOR	2SA1162-G	
Q060	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q061	8-729-119-76	TRANSISTOR	2SA1175-HFE	

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
⚠R031	1-212-867-00	FUSIBLE	27	5%	1/4W F
R032	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
⚠R033	1-216-426-11	METAL OXIDE	82	5%	1W F
R051	1-216-081-00	METAL CHIP	22K	5%	1/10W
R052	1-216-075-00	METAL CHIP	12K	5%	1/10W
R053	1-216-093-00	METAL CHIP	68K	5%	1/10W
R054	1-216-081-00	METAL CHIP	22K	5%	1/10W
R055	1-216-075-00	METAL CHIP	12K	5%	1/10W
R056	1-216-097-00	METAL CHIP	100K	5%	1/10W
R057	1-216-073-00	METAL CHIP	10K	5%	1/10W
R061	1-216-073-00	METAL CHIP	10K	5%	1/10W
R062	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R063	1-216-049-00	METAL CHIP	1K	5%	1/10W
R064	1-247-750-11	CARBON	680	5%	1/2W
R065	1-247-750-11	CARBON	680	5%	1/2W
R066	1-216-049-00	METAL CHIP	1K	5%	1/10W
⚠R067	1-216-369-00	METAL OXIDE	1	5%	2W F
R068	1-208-821-91	METAL GLAZE	43K	0.50%	1/10W
R069	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R070	1-208-821-91	METAL GLAZE	43K	0.50%	1/10W
R071	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R073	1-216-073-00	METAL CHIP	10K	5%	1/10W
⚠R074	1-215-866-11	METAL OXIDE	330	5%	1W F
R075	1-216-073-00	METAL CHIP	10K	5%	1/10W
R076	1-247-750-11	CARBON	680	5%	1/2W
R077	1-216-073-00	METAL CHIP	10K	5%	1/10W
R078	1-216-093-00	METAL CHIP	68K	5%	1/10W
R079	1-216-097-00	METAL CHIP	100K	5%	1/10W
R080	1-216-097-00	METAL CHIP	100K	5%	1/10W
		< RELAY >			
⚠RY031	1-515-833-11	RELAY(G5Z-2A)			

****

*	A-6423-136-A	PW-712 BOARD, COMPLETE (A2)
		**********
*	A-6423-131-A	PW-712 BOARD, COMPLETE (750)
		**********

(Ref.No.7,000 Seriese)

		< CAPACITOR >			
C291	1-124-589-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
CN291	1-506-485-11	PIN, CONNECTOR 6P			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remarks
		< DIODE >				
D291	8-719-911-19	DIODE 1SS119				
D292	8-719-992-30	LED SLR-305MC3F (POWER) (750)				
D292	8-719-028-30	DIODE SPR-39MVWF (POWER) (A2)				
D293	8-719-992-30	LED SLR-305MC3F (POWER) (750)				
D293	8-719-028-30	DIODE SPR-39MVWF (POWER) (A2)				
D294	8-719-992-26	LED SLR-305DC3F (QUICK START)				
		< IC >				
IC291	8-741-100-48	IC SBX1610-59				
		< TRANSISTOR >				
Q292	8-729-900-63	TRANSISTOR DTA124ES (A2)				
Q293	8-729-900-63	TRANSISTOR DTA124ES				
Q294	8-729-900-63	TRANSISTOR DTA124ES				
		< RESISTOR >				
R291	1-249-411-11	CARBON	330	5%	1/4W	(A2)
R292	1-249-411-11	CARBON	330	5%	1/4W	
R293	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R294	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R295	1-247-807-31	CARBON	100	5%	1/4W	
R296	1-249-409-11	CARBON	220	5%	1/4W	F
R297	1-249-411-11	CARBON	330	5%	1/4W	(A2)
R298	1-249-409-11	CARBON	220	5%	1/4W	F
R299	1-249-417-11	CARBON	1K	5%	1/4W	F
		< SWITCH >				
S292	1-571-977-11	SWITCH, TACTIL (QUICK START)				
S293	1-571-977-11	SWITCH, TACTIL (FL DISPLAY)				
S294	1-571-977-11	SWITCH, TACTIL (POWER)				
**********						
	A-6421-954-A	SW-719 BOARD, COMPLETE				
		**********				
		(Ref. No. 3,000 Seriese)				
		< CONNECTOR >				
* CN481	1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P BOARD				
		< SWITCH >				
S481	1-692-439-11	SWITCH, PUSH				
**********						
*	A-6423-130-A	SW-730 BOARD, COMPLETE				
		**********				
		(Ref. No. 7,000 Seriese)				
		< CONNECTOR >				
CN281	1-506-486-11	PIN, CONNECTOR 7P				

Ref. No.	Part No.	Description				Remarks
		< DIODE >				
D281	8-719-992-30	LED SLR-305MC3F (SIDE A)				
D282	8-719-992-30	LED SLR-305MC3F (SIDE B)				
D283	8-719-955-04	LED PY5504S-1 (LD DIGEST)				
D284	8-719-042-50	LED SLR-33MC3F (AUTO RESUMEE)				
D285	8-719-042-50	LED SLR-33MC3F (AUTO RESUMEE)				
		< RESISTOR >				
R280	1-249-401-11	CARBON	47	5%	1/4W	F
R281	1-249-433-11	CARBON	22K	5%	1/4W	
R282	1-249-430-11	CARBON	12K	5%	1/4W	
R283	1-249-401-11	CARBON	47	5%	1/4W	F
R284	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R285	1-249-433-11	CARBON	22K	5%	1/4W	
R286	1-249-428-11	CARBON	8.2K	5%	1/4W	F
R287	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R288	1-249-422-11	CARBON	2.7K	5%	1/4W	F
		< SWITCH >				
S281	1-571-977-11	SWITCH, TACTIL (SIDE B)				
S282	1-571-977-11	SWITCH, TACTIL (LD DIGEST)				
S283	1-571-977-11	SWITCH, TACTIL (▶▶)				
S284	1-571-977-11	SWITCH, TACTIL (◀◀)				
S285	1-571-977-11	SWITCH, TACTIL (SIDE A)				
S286	1-571-977-11	SWITCH, TACTIL (▮▮)				
S287	1-571-977-11	SWITCH, TACTIL (▶)				
S288	1-571-977-11	SWITCH, TACTIL (■)				
S289	1-571-977-11	SWITCH, TACTIL (OPEN/ CLOSE)				
**********						
*	A-6423-010-A	TR-717 BOARD, COMPLETE (A2)				
		**********				
*	A-6423-048-A	TR-717 BOARD, COMPLETE (750)				
		**********				
		(Ref. No. 6,000 Seriese)				
⚠	1-533-189-11	HOLDER, FUSE				
		< CAPACITOR >				
⚠C001	1-104-705-11	FILM	0.1uF	20%	250V	
		< CONNECTOR >				
⚠CN001	1-564-419-11	HEADER, SPRING (POWER) 2P				
		< PIN >				
LP001	4-352-844-01	PIN, LEAD, COATING				
		< TRANSFORMER >				
⚠T002	1-406-884-11	FILTER, LINE 2.5A				
**********						

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
11*	A-6423-011-A	VS-706 BOARD, COMPLETE (A2)	
		********** (Ref. No. 6,000 Seriese)	
⚠	1-533-189-11	HOLDER, FUSE (A2)	
		< SWITCH >	
⚠S021	1-570-615-11	SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR) (A2)	
		**********	
		MISCELLANEOUS	
		**********	
⚠166	1-575-912-21	CORD, POWER (A2)	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	
⚠F1	1-532-215-00	FUSE, TIME-LAG (A2)	
⚠F1	1-532-742-11	FUSE, GLASS TUBE (750)	
⚠F21	1-532-066-00	FUSE, TIME-LAG (A2)	
⚠F31	1-532-299-00	FUSE, TIME-LAG (A2)	
⚠F31	1-532-747-11	FUSE, GLASS TUBE (750)	
⚠F32	1-532-299-00	FUSE, TIME-LAG (A2)	
⚠F32	1-532-747-11	FUSE, GLASS TUBE (750)	
M471	X-3942-963-1	MOTOR ASSY (LOADING MOTOR)	
M903	1-541-930-11	MOTOR, DC	
M950	1-698-109-11	MOTOR, DD (SPINDLE)	
⚠T1	1-423-522-11	TRANSFORMER, POWER (750)	
⚠T1	1-423-556-11	TRANSFORMER, POWER (A2)	
		**********	
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-574-085-11	CORD, POWER (750)	
	3-758-437-11	MANUAL, INSTRUCTION (A2) (ENGLISH, CHINESE, SPANISH)	
	3-758-437-21	MANUAL, INSTRUCTION (750) (ENGLISH)	
	3-758-437-31	MANUAL, INSTRUCTION (750:Canadian) (FRENCH)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT (750:US)	
	1-751-271-11	CORD, CONNECTION (1.5m)	
	1-467-603-41	REMOTE COMMANDER (RMT-M25A)	
*	3-953-404-01	CUSHION (UPPER)	
*	3-953-405-01	CUSHION (LOWER)	
*	3-953-410-51	INDIVIDUAL CARTON (750)	
*	3-953-410-61	INDIVIDUAL CARTON (A2)	
		**********	

Ref. No.	Part No.	Description	Remarks
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-671-155-01	STEEL BALL 3.0	
#3	7-624-105-04	STOP RING 2.3, TYPE -E	
#4	7-685-144-11	SCREW +P 3X5 TYPE2 NON-SLIT	
#5	7-685-645-79	SCREW +P 3X5 TYPE2 NON-SLIT	
#6	7-682-645-01	SCREW +PS 3X4	
#7	7-685-647-79	SCREW +BVTP 3X10 TYPE2	
#8	7-627-553-48	SCREW, PRECISION +P 2X4	
#9	7-628-253-05	SCREW +PS 2X4	
#10	7-621-759-35	+PSW, 2.6X5	
#11	7-688-003-11	W 3, MIDDLE	
#12	7-624-190-81	STOP RING 2, TYPE-CS	
#13	7-682-946-09	SCREW +PSW 3X5	
#14	7-621-759-65	+PSW, 2.6X8	
#15	7-685-661-14	SCREW +BVTP 4X12 TYPE2 IT-3	
#16	7-624-102-04	STOP RING 1.5, TYPE -E	
#17	7-685-131-19	SCREW +P 2.6X4 TYPE2 NON-SLIT	
#18	7-685-158-19	SCREW +P 4X6 TYPE2 NON-SLIT	
#19	7-685-103-19	SCREW +P 2X5 TYPE2 SLIT	
#20	7-623-210-22	SW 4, TYPE 2	
#21	7-684-220-02	NUT 3, HEXAGON CAP	
#22	7-621-775-20	SCREW +B 2.6X5	
#23	7-685-648-79	SCREW +BVTP 3X12 TYPE2	
#24	7-685-646-81	SCREW +BVTP 3X8 TYPE2	

Note:
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Replace only with part number specified.

Note:
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Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. MB-702 BOARD IC501 MB89094PF-G-116 (SYSTEM CONTROL MICROCOMPUTER) PIN FUNCTION

No.	Pin Name	I/O	Description
1	N.C		
2	CLK32	I	CRYSTAL OSCILLATOR (32 kHz) input
3	GND	I	
4	GND	I	
5	2FSC	I	CRYSTAL OSCILLATOR (32 Esc) input
6	N.C		
7	Vss	I	GND
8	XRST	I	RESET TERMINAL (L : RESET)
9	XFREQ	I	PHIL CODE READ OUT ENABLE
10	FQACK	O	DISC DATA READ IN
11	FQSEL	O	PHILLIPS CODE/SUBQ DATA SELECT (L : SUBQ)
12	JPCTRL	O	1TJ/MTJ SELECT SIGNAL (H : 1TJ)
13	SPLOCK	I	SPINDLE LOCK SIGNAL (H : DURING SPINDLE LOCKING)
14	TBCHOLDIN	O	CHROMA TBC CONTROL
15	SCOR	I	H WHEN SUB CODE SYNC IS DETECTED
16	XPBV	I	V SYNC SIGNAL
17	XREFV	I	REFERENCE V SYNC SIGNAL
18	ALT	O	A REGISTER LATCH
19	BLT	O	B REGISTER LATCH
20	XBUSY	I	COMMUNICATION ENABLE SIGNAL FROM MMI (H : COMMUNICATION ENABLE)
21 ~ 24	N.C		
25	CLSCS	O	CHIP SELECT FOR READING PHASE DIFFERENCE DATA
26	SPDLPLS	O	SPINDLE PULSE DRIVE SIGNAL (H : spdl free run)
27	TBRKMON	O	SERVO IC BRAKE MONITOR (H : BRAKE ON)
28	+ 5V	I	
29	CLSDT	I	SERIAL INPUT DATA
30	SETDT	O	SERIAL OUTPUT DATA
31	SETCK	O	SERIAL TRANSFERRING CLOCK
32	SPDLFG1	I	SPINDLE FG INPUT 1 (1 ROTATION : 12WAVES)
33	CGV_MUTE	I	CGV MUTE SIGNAL (H, L OUTPUT) NORMALLY HiMP
34	LD SEARCH	O	FOR SPDL ER AMP C SHORT (H : DURING SEARCHING)
35	SPDL F/R	O	SPINDLE ROTATING DIRECTION SIGNAL (H : FWD)
36	N.C		
37	JMP TRIG	O	TRACK JUMP TRIGGER PULSE OUTPUT
38	MWE	O	REQUEST FOR WRITING TO THE MEMORY
39	MEM/THR	O	SWITCHING BETWEEN MEMORY PICTURE AND THROUGH PICTURE
40	MSTAT	I	H : DURING WRITING TO THE MEMORY
41	MTJ	I	TRACKING PULSE GENERATOR FOR MTJ NORMALLY INPUT, OUTPUT DURING ACTIVATE (L : FWD)
42	MTF ON/OFF	O	MTF CORRECTION ON/OFF SIGNAL (H : MTF ON)
43	TRK OFF	O	PUT OFF SERVO IC TRACKING CONTROL (L : TRACKING OFF)
44	SHARP	O	PICTURE ENHANCE SHARP
45	GMUTE	O	GRAY SCREEN ON/OFF SIGNAL ON CLS (ON : H)
46	N.C		
47	XSOFT	O	PICTURE ENHANCE SOFT
48	FOK	I	FOCUS LOCK SIGNAL (H : FOCUS LOCK)
49	Vcc	I	+ 5V POWER SUPPLY
50	XBYST	I	COMMUNICATION ENABLE SIGNAL FROM MMI (H : COMMUNICATION ENABLE)

No.	Pin Name	I/O	Description
51	TV/DISC	O	ANTENNA TV/DISC SELECT
52	SLED FWD	O	SLED FWD FORCE MOVE FROM PORT
53	SLED REV	O	SLED REV FORCE MOVE FROM PORT
54	XMMICS	O	COMMUNICATION CHIP SELECT TO MMI
55	LOADING	O	TRAY LOADING DRIVE
56	UNLOADING	O	TRAY EJECT DRIVE
57	X DSW LD	O	YSD221 CHIP SELECT (L : COMMUNICATING)
58	Vss	I	GND
59	LINE MUTE	O	AUDIO OUTPUT MUTE SIGNAL (H : MUTE)
60	SLED SPEED	O	SLED DRIVE SPEED CHANGE (L : SLOW)
61	XSV DSP RST	O	SERVO DSP DF RESET (L : RESET)
62	LD ON	O	OPT LIGHT EMITTING • TILT ON (H : EMITTING)
63	XCD/LD CDV	O	CD/VDV : L DURING APART, OTHERS H
64	SLED MODE	O	1 : SLED IS IN PLAY MODE
65	SIDE A/B	O	TILT SERVO SIDE SELECT (A : H, B : L)
66	XT/H SV	O	TILT/HIGHT SELECT (L : TILT)
67	LCSW1	I	LOADING/CHUCKING POSITION SENSOR INPUT 1
68	XLD LED	O	LED EMITTING SIGNAL FOR DISC DISCRIMINATION
69	LCSW3	I	LOADING/CHUCKING POSITION SENSOR INPUT 2
70	LCSW2	I	LOADING/CHUCKING POSITION SENSOR INPUT 3
71	SPDL FG2	I	SPINDLE FG INPUT 2
72	TILT LIMIT	I	TILT UP/DOWN LIMIT SW INPUT
73	TILT CTR	I	TILT CENTER POSITION SW INPUT
74	MECH SI	I	32 BYTE SERIAL TRANSFERRING DATA INPUT
75	N.C		
76	N.C		
77	MECH SO	I	32 BYTE SERIAL TRANSFERRING DATA OUTPUT
78	MECH SI	O	32 BYTE SERIAL TRANSFERRING DATA INPUT
79	MECH CLK	O	32 BYTE SERIAL TRANSFERRING CLOCK
80	T CNT	I	NOT USED
81	N.C		
82	N.C		
83	AVss	I	GND
84	LDDET	I	A/D INPUT THERE IS DISC OR NOT, 8/12 INCH DETECTION
85	CDV/FRLMT	I	A/D INPUT SLED POSITION INFORMATION (CDV)
86	CD ABLD	I	A/D INPUT SLED POSITION INFORMATION (CD, ALD, BLD)
87	INLIMIT	I	A/D INPUT SLED POSITION INFORMATION (INLIMIT)
88	XDSPLT	O	DSP LATCH SIGNAL
89	MUTG	O	DSP MUTE SIGNAL (H : MUTE)
90	LOCK	I	FRME SYNC (EFM) LOCK SIGNAL (Hi LOCK)
91	SENSE	I	VARIOUS SENSE INPUT SIGNAL FROM DSP
92	AVcc	I	+ 5V POWER SUPPLY
93	MIC IN	I	NOT USED
94	XDFLT	O	DIGITAL FILTER LATCH SIGNAL
95	ASSIST	O	NOT USED
96	KCS	O	NOT USED
97	CX	O	CX ON/OFF (H : ON)
98	N.C		
99	XDSPSEL	O	SELECTS COMMUNICATION WITH DSP (L : CONNECT, H : SEPARATE)
100	Vcc	I	POWER SUPPLY TERMINAL (+ 5V)

6-2. FP-717 BOARD IC201 MB89095PF-G-161 (MODE CONTROL MICROCOMPUTER) PIN FUNCTION

No.	Pin Name	I/O	Description
1	CLK32KHZ	O	FOR CRYSTAL OSCILLATOR (32 kHz)
2	CLK32KHZ	I	FOR CRYSTAL OSCILLATOR (32 kHz)
3	GND	I	
4	GND	I	
5	CLK8MHZ	I	FOR CRYSTAL OSCILLATOR (8 MHz)
6	CLK8MHZ	O	FOR CRYSTAL OSCILLATOR (8 MHz)
7	Vss	I	GND
8	X RST	I	RESET IN (L : RESET)
9	X MRST	I	SLC RESET IN (L : RESET)
10	X BUSY	O	L WHEN COMMUNICATING WITH SLC
11	AUMUTE	O	H WHEN AUDIO MUTING
12 ~ 16	N.C		
17	X REFV	I	REFERENCE V SYNC SIGNAL
18	X MMI CS	I	CHIP SELECT FOR COMMUNICATION WITH SLC (L : COMMUNICATING)
19 ~ 24	N.C		
25	POW CTR	O	POWER ON/OFF CONTROL OF THE SET (H : POWER ON)
26	N.C		
27	N.C		
28	+ 5V PULLUP	I	START MODE SELECTIONS INPUT AFTER IS RELEASED
29	N.C		
30	CG SI	O	CHARACTER GENERATOR SERIAL TRANSFERRING DATA OUT
31	CG CLK	O	CHARACTER GENERATOR SERIAL TRANSFERRING DATA CLOCK OUT
32	SIRCS IN	I	SIRCS DATA IN
33	X CG CS	O	CHARACTER GENERATOR SERIAL TRANSFERRING CHIP SELECT (L : COMMUNICATING)
34 ~ 38	N.C		
39	FL P1	O	FL TUBE SEGMENT OUT
40	P2	O	FL TUBE SEGMENT OUT
41	P3	O	FL TUBE SEGMENT OUT
42	P4	O	FL TUBE SEGMENT OUT
43	P5	O	FL TUBE SEGMENT OUT
44	P6	O	FL TUBE SEGMENT OUT
45	P7	O	FL TUBE SEGMENT OUT
46	P8	O	FL TUBE SEGMENT OUT
47	P9	O	FL TUBE SEGMENT OUT
48	P10	O	FL TUBE SEGMENT OUT
49	Vcc	I	EVER + 5V POWER SUPPLY
50	FL P11	O	FL TUBE SEGMENT OUT
51	P12	O	FL TUBE SEGMENT OUT
52	P13	O	FL TUBE SEGMENT OUT
53	VRDP	I	- 30V HIGH WITH SAND VOLT PGE PULL DOWN POWER SUPPLY
54	FL P14	O	FL TUBE SEGMENT OUT
55	P15	O	FL TUBE SEGMENT OUT
56	P16	O	FL TUBE SEGMENT OUT
57	FL P17	O	FL TUBE SEGMENT OUT
58	Vss	I	GND
59	FL P18	O	FL TUBE SEGMENT OUT
60	P19	O	FL TUBE SEGMENT OUT
61	P20	O	FL TUBE SEGMENT OUT
62	P21	O	FL TUBE SEGMENT OUT
63	P22	O	FL TUBE SEGMENT OUT
64	P23	O	FL TUBE SEGMENT OUT
65	N.C	O	
66	N.C	O	
67	Vcc	I	EVER + 5V POWER SUPPLY
68	FL 7G	O	FL TUBE GRID OUT
69	6G	O	FL TUBE GRID OUT
70	5G	O	FL TUBE GRID OUT
71	4G	O	FL TUBE GRID OUT
72	3G	O	FL TUBE GRID OUT
73	2G	O	FL TUBE GRID OUT
74	1G	O	FL TUBE GRID OUT
75	N.C		
76	X MMI CS	I	32 BYTE SERIAL TRANSFERRING CHIP SELECT (L : COMMUNICATING)
77	MECH SO	I	32 BYTE SERIAL TRANSFERRING DATA INPUT
78	MECH SI	O	32 BYTE SERIAL TRANSFERRING DATA OUTPUT
79	MECH CLK	O	32 BYTE SERIAL TRANSFERRING CLOCK
80	DIGEST	O	LD DIGEST LED OUTPUT
81	X SA LED	O	SIDE A LED OUT (L : LIGHTING UP)
82	X SB LED	O	SIDE B LED OUT (L : LIGHTING UP)
83	AVss	I	GND
84	AD0	I	KEY INPUT
85	AD1	I	KEY INPUT
86	AD2	I	KEY INPUT
87 ~ 91	N.C		
92	AVcc	I	EVER + 5V POWER SUPPLY
93	N.C		
94	- 16V MONITOR	I	- 16V MONITOR
95	AD3	I	DOOR SWITCH INPUT
96	REG MONITOR	I	REG + 5V MONITOR
97	AUTO PESUME	O	AUTO PRESUME LED OUTPUT
98	X QUICK LED	I	DIRECT ACCESS LED OUTPUT (L : LIGHTING UP)
99	N.C		
100	Vcc	I	EVER + 5V POWER SUPPLY

SECTION 7
ELECTRICAL ADJUSTMENT

During the adjustments, see the parts arignment diagram for adjustments on page from 7-12.

7-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Frequency counter
- Remote commander (RMT-M20A)
- LD alignment disc HVL-8 (8-797-008-00) NTSC Ref. Disc 8

7-2. CAUTIONS ON ADJUSTMENT

- Disc load/unload operation must not be performed when servicing with the unit laying down sideways. (Never press the OPEN and CLOSE buttons.)
- When laying the unit down sideways, perform adjustment with the left side down and turn the power on.
- When adjusting the servo system, be sure to set up the unit horizontally.

7-3. OPERATION OF THE MDP-750/A2 WITH HIDDEN KEY FUNCTION

1. Explanation of the hidden key functions

Special control functions to be used for the test or some other purposes of the MDP-750/A2 are available by pressing at the same time and in specific order the multiple function keys on the main unit and/or on the remote control unit. The control functions available in this way are called "special key functions". The special key functions can be used in either of the following modes.

- the service mode,
- the debugging mode, or
- the normal operation mode.

The special key functions can be divided into two groups according to the key control operations as follows:

- Simultaneous main-unit-key-press functions
  Some control functions can be used by pressing simultaneously multiple specific keys on the main unit.
- Simultaneous main-and-remote-control-units-key-press functions
  Some other control functions can be used by pressing simultaneously two specific keys on the remote control unit while holding down a specific key on the main unit.

2. How to use "simultaneous main-unit-key-press functions"

The functions available by pressing simultaneously the multiple specific keys only on the main unit are called "simultaneous main-unit-key-press functions". These functions are to be used when a quick operation such as "forced power off" is required. The following table lists the currently available simultaneous main-unit-key-press functions.

Table 7-1. List of simultaneous main-unit-key-press functions

Keys to be pressed on the main unit	Functions
Reverse direction scanning key and power key	(1) Forced power off This function turns off power forcibly. It is to be used if you want to turn off the power in the following cases. • Operation of the mechanisms is out of control. • Power cannot be turned off by pressing the power key. Note that this function should be used with care because it may turn off the power in a half way of the operation of the mechanisms.
STOP key and power key	(2) Forced reset This function carries out initialization of the mode controller in addition to the forced power off function. It is to be used if you want to reset the mode controller in the following case. Something is wrong with the mode controller such that it operates with incorrect display. Note that once this function has been carried out, all information, including the history of emergency case, other than the trap-flag information in the debugging mode, will be deleted.
B side key and door open/close key and power key (With power off only)	(3) Lighting up all the FL display (all the segments of the FL tube) and LEDs on the main unit This function turns on all the FL tube segments and LEDs after turning on the power automatically. Until you switched off the power, normal operation is possible while all the FL tube segments and LEDs are lit.

3. How to use "simultaneous main-and-remote-control-units-key-press functions"

The functions available by pressing the two specific keys on the remote control unit while holding down the specific key on the main unit are called "simultaneous main-and-remote-control-units-key-press functions". It is necessary to press two keys on the remote control unit within about one second. This prevents an accidental use of these functions by the user.

These functions are to be carried out by using the FL display key, so that the operation of the mechanisms is not affected.

The following table lists the currently available simultaneous main-and-remote-control-units-key-press functions.

Table 7-2. List of simultaneous main-and-remote-control-units-key-press functions

Step	Keys to be pressed on the main unit and on the remote control unit	Functions
1 2	FL display key and 0 key FL display key and STOP key	(1) Debugging mode ON/OFF This function puts the unit in the debugging mode from another mode, or puts the unit in the mode other than the debugging mode from the debugging mode. For details on the debugging mode, refer to 7-5. "OPERATION OF THE MDP-750/A2 IN THE DEBUGGING MODE".
1 2	FL display key and 0 key FL display key and screen display key	(2) Forced V muting ON/OFF This function releases the unit from the forced V muting condition if it is in the forced V muting condition, or puts the unit in the forced V muting condition if it is not in the forced V muting condition. It can be used to obtain a blue background during playback, or removing the blue background while the unit is in the stop mode.
1 2	FL display key and 0 key FL display key and clear key	(3) Resetting of V muting This function resets the unit in the V muting condition to normal condition. That is, it releases the unit from condition (2) above.
1 2	FL display key and 0 key FL display key and +10 key	(4) Make mechanism controller time out ineffective. Make the function turning power off ineffective when communication with mechanism controller cannot be done. When mechanism controller doesn't operate, it used to hasten to operate mode controller.
1 2	FL diaplay key and 0 key FL diaplay key and 0 key	(5) Make mechanism controller time out effective. Make the function turning power off effective when communication with mechanism controller cannot be done.

7-4. OPERATION OF THE MDP-750/A2 IN THE SERVICE MODE

1. Explanation of the service mode

The functions for the use on reparation and maintenance (the service mode) are incorporated in the MDP-750/A2. The mode in which those functions are available is called "the service mode".

The following are the differences between the service mode and the normal operation mode.

(1) Special operations such as focusing search and sledding can be carried out.
(2) Power is not turned off automatically in an emergency condition of power off.
(3) When entering the service mode, also the debugging mode is started automatically. (For details of the debugging mode, refer to 7-5. "OPERATION OF THE MDP-750/A2 IN THE DEBUGGING MODE".

2. Entering the service mode

The following procedure shows how to enter the service mode.

(1) While the power is turned off, connect the test pin (TP501 for service mode setting) on the MB board of the main unit, to the ground.
(2) Turn on the power by pressing the power key of the main unit. Nothing is displayed on the screen at this moment.
(3) Disconnect the test pin (the connection was performed in step (1) above) from the ground.
The service mode can be started when the background color changes in violet. If the background color is blue or black, the service mode is not available yet. If so, restart the procedure from step (1) above.
When the unit is in the service mode, it is also put in the debugging mode (the functions those available in both the modes can be used). Therefore, the version No. of the microprocessor appears on the screen. For details of the debugging mode, refer to 7-5. "OPERATION OF THE MDP-750/A2 IN THE DEBUGGING MODE".

3. Quitting the service mode

To quits the service mode, press the power key and turn off the power. If you cannot turn off the power in this way (the operation of the mechanisms is not complete), carry out the forced power off function by pressing the reverse direction scanning key and the power key on the main unit at the same time.

4. Operating with the special key functions

The special key functions in the service mode are available only under NO DISC and STOP conditions, for safety purposes.
Check that the indication for those conditions is displayed without flashing on the screen or on the FL display. In order to carry out the special key functions listed in table 7-3, in the status above, turn off the FL display, and then press the desired key such as PLAY or PAUSE on the main unit.
The sledding motion with the SIDE A or SIDE B key is effective only while holding the key pressed. However, the operation started with the PLAY or PAUSE key continues, once it is pressed, until you press the STOP key. While the unit is carrying out the special key function, the LED of side B of the main unit is lit.
Note that multiple special key functions cannot be started even if you press multiple keys at the same time.
When the FL display is turned off, some keys are not effective. Be sure to turn on the FL display if you don't want to carry out the special key functions.

Table 7-3. List of the special key functions

Key	Special key functions
SIDE A	Sledding in reverse direction (downward)
SIDE B	Sledding in normal direction (upward)
PLAY	Focusing search
PAUSE	Tilt servo ON
STOP	Stop special operations

The following are the details of the special key functions available with the MDP-750/A2.

(1) PLAY key for focusing search
Focusing search operation can be carried out repeatedly by holding down the PLAY key. There is no fault with the unit if the pick-up lens moves up and down.
Be sure to start the focusing search operation after checking the condition that the the sled is placed in appropriate position (at around the center of side A). To stop the focusing search operation, press the STOP key.

(2) SIDE A key for sledding in reverse direction
The sled can be moved in reverse direction (center of side B, to edge of side B, to edge of side A, and then to center of side A) after completing initialization of the tilt (the tilt is placed in neutral position) by holding down the SIDE A key. To stop the sledding in reverse direction, release the SIDE A key.

(3) SIDE B key for sledding in normal direction
As contrary to item (2) above, the sled can be moved in normal direction (center of side A, to edge of side A, to edge of side B, and then to center of side B). This movement of the sled is desired when replacing the optical part. To stop the sledding in normal direction, release the SIDE B key.

(4) PAUSE key for tilt servo ON
The tilt servo is activated while holding down the PAUSE key. Move the sled to around the center of side A with the SIDE A and SIDE B keys, and put a CD or equivalent on the tray so that it screens the skew sensor. Then, if the tilt moves by pressing the PAUSE key, operation is normal.
The tilt can be placed back in neutral position by moving the sled with the SIDE A and SIDE B keys. To deactivate the tilt servo, press the STOP key.

7-5. OPERATION OF THE MDP-750/A2 IN THE DEBUGGING MODE

1. Explanation of the debugging mode

The contents in the RAM of the microprocessor can be displayed on the screen for the repair and maintenance purposes. The status of the MDP-750/A2 in which this debugging function is available is called "the debugging mode".
The following are the differences between the debugging mode and the normal operation mode.

(1) The background color of the screen changes in green when the FL display is turned off.
(2) Under the status described item (1) above, pressing the key on the remote control unit displays the history of emergency conditions or other debugging information.
Some keys are not effective when the FL display is turned off.

2. Entering the debugging mode

To enter the debugging mode from a normal operation mode (in a normal status of operation), turn on the unit, press the 0 key and then the STOP key on the remote control unit while holding down the FL display key on the main unit.
When the following display appears on the screen, the unit is in the debugging mode. This display shows the version No. of the microprocessor. For details, refer to 5. (1) "[FRAME/TIME] key for displaying version No. of the microprocessor".
In the debugging mode, when the FL display is turned off in the stop or some other modes, the background color changes in green. (Note that it is violet in the service mode.)

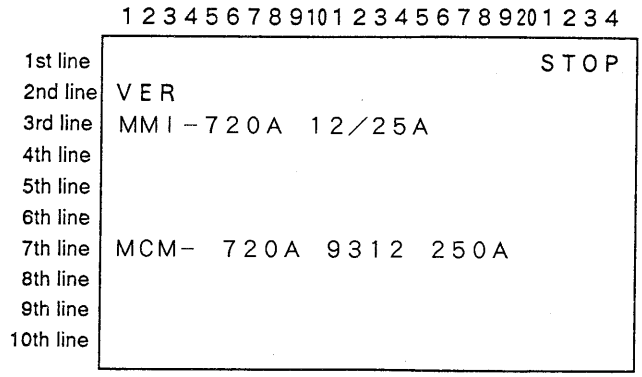

1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 20 1 2 3 4
1st line
STOP
2nd line
V E R
3rd line
MM I - 7 2 0 A 1 2 / 2 5 A
4th line
5th line
6th line
7th line
MCM- 720A 9312 250A
8th line
9th line
10th line

Fig. 7-1. Initial display in the debugging mode

3. Quitting the debugging mode

To quits the debugging mode, press the clear key on the remote control unit when the menu (version No. of the microprocessor indication in FL display off) in figure 7-1 is displayed.
The same key operation as step (2) also sets the mode back in the normal operation mode.

4. Changing the display on the screen

The display is set for "debugging display" immediately after entering the debugging mode. The display mode can be changed in the same manner as in the normal operation mode by pressing the screen display key. In the debugging mode, however, "debugging display" mode can be selected as one of the display modes, in addition to "no display (displays nothing in most cases)", "small display (displays only the 1st line in most cases)", and "large display (displays full screen in most cases)" modes.
Pressing the screen display key in the normal operation mode changes the display mode as follows:

No display → Small display → Large display →

Pressing the screen display key in the debugging mode changes the display mode as follows:

No display → Small display → Large display → Debugging display →

5. Explanation of the debugging display

In the debugging display mode, the information on the mode controller is displayed on the screen as a dump list. The title is displayed at the left on the 2nd line from the top. The data is displayed on the 3rd line through the 9th line.
The display of the data in one line consists of up to four sets (total of 8 bytes) of four character (2 bytes character each) sets in hexadecimal notation.
The information to be displayed can be selected in the debugging mode, by turning off the FL display and pressing the desired key (as listed below).
The following table lists the information which are currently available and which can be displayed.

Table 7-4. List of the keys to be used in the debugging mode and corresponding information

Keys	Information to be displayed
[FRAME/TIME]	Version No. of the microprocessor
[1]	History of the function modes
[2]	History of the emergency occurrence
[3]	Information for repair service of normally
[4]	Trap-flag
[5]	Key/remote control data
[7]	Information on communication with the mechanism controller

(1) [FRAME/TIME] key for displaying version No. of the microprocessor
Pressing this key displays the version No. of the microprocessor. The version No. of the mode controller appears on the 3rd line, and that of the mechanism controller appears on the 7th line. An example in figure 7-2 shows that the version No. of the mode controller is "MMI-720A 12/25A" and that of the mechanism controller is "MCM-720A 93/12/25A".

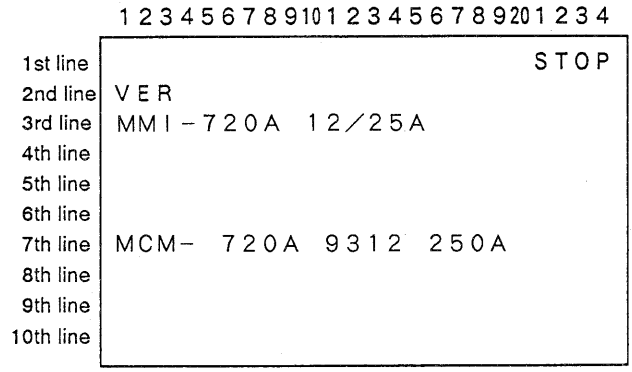

1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 20 1 2 3 4
1st line
2nd line
3rd line
4th line
5th line
6th line
7th line
8th line
9th line
10th line
STOP
V E R
MM I - 7 2 0 A 1 2 / 2 5 A
MCM- 7 2 0 A 9 3 1 2 2 5 0 A

Fig. 7-2. Version No. of the microprocessor

(2) [1] key for displaying the history of the function modes
Pressing this key displays the history of the principal operation commands (which represent function modes) sent from the mode controller to the mechanism controller.
Up to 8 histories of the function modes can be displayed on a line. A total of 16 histories of the function modes are available using two lines. Unless the unit is unplugged, the data are kept intact in memory even when the unit is turned off.
The data to be stored appears on the screen from left to right 1 byte by 1 byte, and "FF" appears to the right of the last data byte. The data byte continues from the right end on the 1st line to the left end on the 2nd line, and from the right end on the 2nd line to the left end on the 1st line.
The last stored data of the function modes (which is the mode selected at present) appears on the left of "FF". That is, when "FF" appears at the left end on the 1st (or the 2nd) line, the last stored data appears at the right end on the 2nd (or the 1st respectively) line.
"FE" means there has been an emergency case at the data point. To check the type of the emergency case, refer to 5. (3) "[2] key for displaying the history of the emergency occurrence".

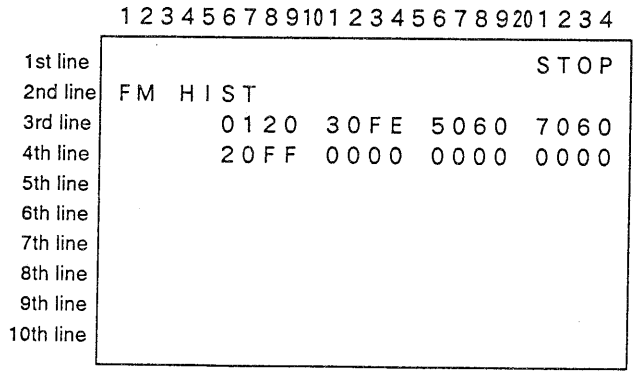


Fig. 7-3. History of the function modes

Figure 7-3 shows that the function modes have changed as follows:

01 (Power on start up)
→ 20 (Stop)
→ 30 (Start up of side A)
→ FE (An emergency occurred.)
→ 50 (Searching a chapter)
→ 60 (Playback)
→ 70 (Slow speed scanning in normal direction)
→ 60 (Playback)
→ 20 (Stop) [The last function mode]

Table 7-5 lists the function modes.

Table 7-5. List of the function modes

00	Power OFF
01	Power ON and start up
10	Open
20	Stop
30	Preparation for playback of side A
40	Preparation for playback of side B
50	Searching a chapter
51	Searching a frame/time
60	Playback
61	Pause
70	Slow speed scanning in normal direction
71	High speed scanning in normal direction
72	Slow speed scanning in reverse direction
73	High speed scanning in reverse direction
80	Still playback in normal direction
81	Step playback in normal direction
82	1/90 times speed playback in normal direction
83	1/30 times speed playback in normal direction
84	1/16 times speed playback in normal direction
85	1/8 times speed playback in normal direction
86	1/4 times speed playback in normal direction
87	1/2 times speed playback in normal direction
88	Normal (1 time) speed playback in normal direction
89	2 times speed playback in normal direction
8A	3 times speed playback in normal direction
8B	5 times speed playback in normal direction
8C	10 times speed playback in normal direction
90	Still playback in reverse direction
91	Step playback in reverse direction
92	1/90 times speed playback in reverse direction
93	1/30 times speed playback in reverse direction
94	1/16 times speed playback in reverse direction
95	1/8 times speed playback in reverse direction
96	1/4 times speed playback in reverse direction
97	1/2 times speed playback in reverse direction
98	Normal (1 time) speed playback in reverse direction
99	2 times speed playback in reverse direction
9A	3 times speed playback in reverse direction
9B	5 times speed playback in reverse direction
9C	10 times speed playback in reverse direction
FE	Appears for indicating an occurrence of emergency
FF	Appears next to the last data.

(3) [2] key for displaying the history of the emergency occurrence

Pressing this key displays the history of the emergency occurrence with the codes sent from the mechanism controller to the mode controller.

The data will be " ○○ " if there has been no emergency case since when the unit has been plugged in.

The display type is the same as that for the history of the function modes. However, up to 8 histories using only one line are available in this case. The emergency code which appears just before "FF" corresponds to the data of "FE" in the history of the function modes, which is the closest one to "FF".

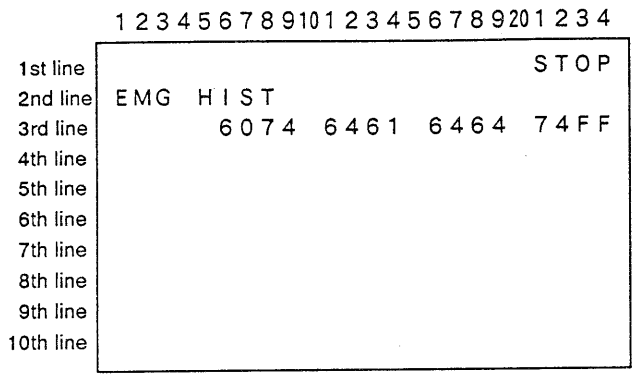


Fig. 7-4. History of emergency

Figure 7-4 shows that the emergency has occurred in the following order because the data next to "FF" is 60 on the left of the line.

60 (Detection of lead-in point)
→ 74 (Focusing failed)
→ 64 (Detection of minimum chapter)
→ 61 (Detection of lead-out point)
→ 64 (Detection of minimum chapter)
→ 64 (Detection of minimum chapter)
→ 74 (Focusing failed) [The last emergency]

Table 7-6 lists the emergency codes.

Table 7-6. List of the emergency codes

		Operation after occurence
◎ For operation of forced modes condition		
01	Requirement of forced power off	Power off
02	Requirement of forced ejection of the tray	Eject
03	Requirement of stop	Stop
04	Requirement of stop when opening the door	Stop
05	Requirement of forced playback	Play
06	Requirement of determination for mode change when power off	Freezes power off display
07	Requirement of power off after communication stops.	Power off
◎ For operation of mechanisms		
10	Detection of movement for pushing in the tray	Play
11	Detection of no movement of the tray	Power off
20	Detection of no movement of the sleder	Power off
30	Detection of no movement of the tilt	Power off
◎ For operation of Spindle control		
40	No detection of the spindle FG	Power off
41	No achievement of continuous servo lock from FG servo to H servo	Stop
42	Above the high rotation limit	Stop
43	Below the low rotation limit	Stop
44	No complete stop operation for the spindle movement	Power off
45	Time over error for the spindle control operation	Power off
◎	For start up operation	
50	Focusing failed	Stop
51	Focusing failed (with a disc loaded)	Stop
52	Detected as if the disc was an LD	None
53	Focusing of LD8 failed	Stop
54	Reading of TOC failed on a disc of CD or CDV	Stop
◎ For playback operation		
60	Detection of the lead-in code	Play or soon
61	Detection of the lead-out code	Stop/Pause or soon
62	Detection of the lead-out of part A on CDV	Stop/Pause or soon
63	Detection of a picture stop	Still
64	Detection of the minimum chapter	None
65	Reading of sub code failed on a disc of CD or CDV	Stop
66	Reading of philips code failed and disc of LD	Stop
◎ For search operation		
70	Detection of over search	Play
71	Detection of under search	Play
72	Time over for the search operation	Play
74	Focusing failed during searching	Stop
◎ The following emergency occurs in mode contoller		
80	Emergency time out	Power off
81	Search time out	Play
82	Mechanism controller communication time out	Power off

(4) [3] key for displaying the information for repair service, sent from the mechanism controller

Pressing this key displays the information sent from the mechanism controller, which is necessary for repair service.

At present, the information listed in table 7-7 is available. Data numbers in the table correspond to the numbers on the 3rd line through the 5th line in figure 7-5.

Table 7-7. Information for repair service, sent form the mechanism controller

Data number	Data
(02)	Mode of mechanisms (internal mode of the mechanism controller) See the following section for details.

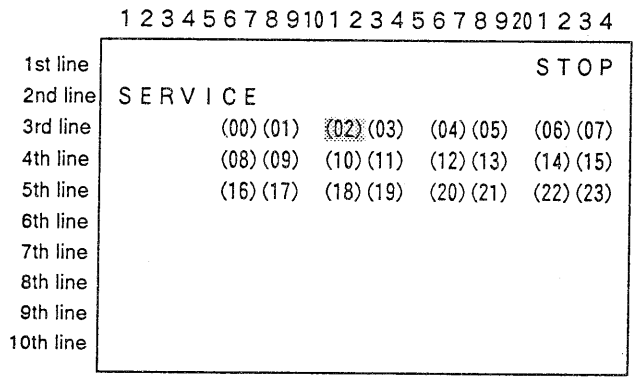


Fig. 7-5. Information for repair service sent form the mechanism controller

◎ About the operation modes of the mechanisms

The operation modes of the mechanisms are the basic operation mode in the mechanism controller. Those almost the same as those available with the unit as the function modes. But, there are several supplemental modes for the mechanisms.

The table below shows the operation modes of the mechanisms.

Table 7-8. Operation modes of the mechanisms

Modes of the mechanisms	Functions
00	Power off
01	Initialization of the mechanism controller (Without operating the mechanisms)
03	In the process from power ON to power OFF
04	In the process from power OFF to power ON
05	Initialization of the mechanisms and related ICs.
10	Ejected status of the tray
11	In the process of ejection of the tray
12	In the process of loading of the tray
20	In stop status with the disc chucking up
21	In the process of chucking up form chucking of side A
22	In the process of chucking of side A from chucking up
23	In chucking status of side A
30	Until focusing of side A has been achieved
31	From lock of focusing to start-up of 0 search
32	In operation from side A/B to stop
33	In process of reversing side B form side A
40	Until focusing of side B has been achieved
50	Chapter search
60	Frame/Time search
61	Pause
70	Slow speed normal direction scanning
71	High speed normal direction scanning
72	Slow speed reverse direction scanning
73	High speed reverse direction scanning
74	In the process of scanning completion
80~	FF (The same as function mode)

(5) [4] key for displaying the trap-flags

Pressing this key displays the cause of "an abnormal power off" of the mode controller (this excludes when it is turned off with the power key).

The one byte at the right (2 digits of hexadecimal notation) is the flag which has specific meaning. The bit which corresponds to the cause of the last abnormal power off is set 1.

The one byte at the left is the flag for all (logic OR of) the causes of abnormal power off since when the unit has been plugged in.

Both the flags can be set cleared by pressing the clear key when the FL display is turned on and this screen is displayed.

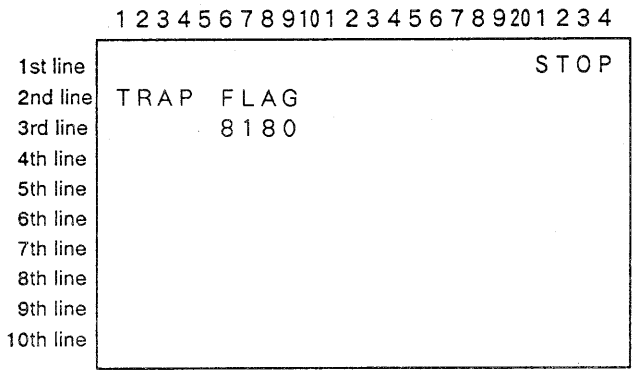


Fig. 7-6. Trap-flag

An example of the trap-flag shown in figure 7-6 shows that there have been two cases of abnormal power off before; 80 by abnormal voltage level and 01 by forced reset by the user (see the byte 81 in hexadecimal notation on the left). It also shows that the last abnormal power off has been caused by 80 (abnormal voltage level) (see the byte 80 in hexadecimal notation on the right).

Table 7-9. Trap-flag and bits and their meaning

Bit number (Pattern)	Causes
7 (80h)	Power off caused by abnormal voltage level
6 (40h)	Power off caused by abnormal communication with the mechanism controller
5 (20h)	Power off caused by an occurrence of emergency
4 (10h)	Forced power off by the key operation
3 (08h)	Resetting by self-check of the mode controller
2 (04h)	Resetting by self-check of the mode controller
1 (02h)	Resetting by self-check of the mode controller
0 (01h)	Forced resetting by the key operation

Note: Resetting, which is indicated with bits 0 to 3 in the table, means that setting the status of the mode controller back to the same status as that when the unit was plugged in, except for initialization of the trap-flag.
A of hexadecimal notation is 2+8. In the same manner, B=1+2+8, C=4+8, D=1+4+8, E=2+4+8, F=1+2+4+8.

(6) [5] key for displaying the key/remote control data

Pressing this key displays the key input data of the main unit and the input data by the remote control unit, using SIRCS codes. Note that this operation is effective on the remote control unit for MDPs only.

The one byte (2 digits in hexadecimal notation) on the left of the 3rd line in figure 7-7 is the SIRCS code of the key input data of the main unit, and that on the right is the SIRCS code of the input data by the remote control unit.

When no key is pressed or there is no input, "FF" appears.

When two keys are pressed almost at the same time, the SIRCS code of the input data by the first pressed key will appear.

The keys to which SIRCS codes are not assigned (i.e. KARAOKE PON key) are defined as internal keys, using the data of 80 or higher in hexadecimal notation.

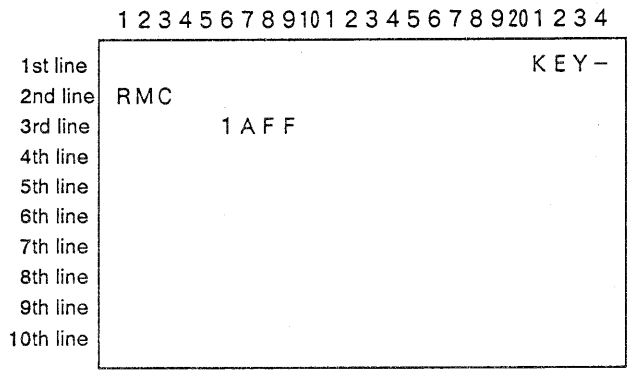


Fig. 7-7. key and remote control data

An example in figure 7-7 shows that the playback key (1A in hexadecimal notation) on the main unit is pressed but there is no input (FF in hexadecimal notation) from the remote control unit.

However, note that, in some cases, the remote control unit generates SIRCS codes momentarily only at the moment when the key is pressed.

Table 7-10. List of SIRCS codes for MDPs

00 Numeral 1
01 Numeral 2
02 Numeral 3
03 Numeral 4
04 Numeral 5
05 Numeral 6
06 Numeral 7
07 Numeral 8
08 Numeral 9
09 Numeral 0
0B Search/sledding
0C Frame/time
0F Clear
15 Power ON/OFF
16 Close/open of tray
17 Audio monitoring
18 Stop
19 Pause
1A Playback
1B High speed reverse direction scanning
1C High speed normal direction scanning
1E Slow speed reverse direction scanning
1F Slow speed normal direction scanning
20 Still
21 Acceleration of speed
22 Deceleration of speed
23 Fast/slow motion playback in normal direction
24 Fast/slow motion playback in reverse direction
25 Playback by memory
28 Time display
29 Repeat
2B Step in normal direction
2C Step in reverse direction
30 Program
34 ACS in normal direction
35 ACS in reverse direction
38 A-B repeat
39 Numeral + 10
3A Screen display
40 Analog audio/CX
41 Shuffle
44 Return
45 Automatic program
46 Automatic pause
47 1/one side/double side
4F Medium speed normal direction playback
50 Medium or slow speed normal direction playback
51 Slow speed normal direction playback
52 Normal direction jog step
55 Reverse direction jog step
56 Slow speed reverse direction playback
57 Medium or slow speed reverse direction playback
58 Medium speed reverse direction playback
5D side A
5E side B
68 Intro-scanning
71 Stop motion
72 Picture call
73 Flash motion
7A Picture enhancement
81 FL display ON/OFF
82 LD quick start
83 Change of CAV still

FF Appears when there is no input.

(7) [6] key for displaying the information on communication with the mechanism controller

Pressing this key displays the communication data with the mechanism controller.

The data transmitted from the mode controller to the mechanism controller appears on the 3rd line through the 5th line. The data transmitted from the mechanism controller to the mode controller appears on the 7th line through the 9th line. The exclamation marks ! at the left on the 8th and the 9th lines indicate that the communication is carried out successfully. Question mark ? appears if communication stops. A bracket mark [■] appears if communication stops after carrying out once the communication on the purpose of servicing.

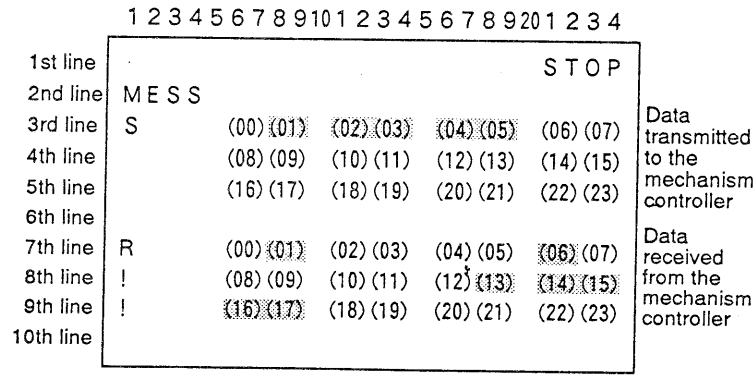

1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 20 1 2 3 4
1st line
2nd line
3rd line
4th line
5th line
6th line
7th line
8th line
9th line
10th line
STOP
MESS
S
R
!
!
(00) (01) (02) (03) (04) (05) (06) (07)
(08) (09) (10) (11) (12) (13) (14) (15)
(16) (17) (18) (19) (20) (21) (22) (23)
(00) (01) (02) (03) (04) (05) (06) (07)
(08) (09) (10) (11) (12) (13) (14) (15)
(16) (17) (18) (19) (20) (21) (22) (23)
Data transmitted to the mechanism controller
Data received from the mechanism controller

Fig. 7-8. Information on communication with the mechanism controller

The table below shows some communication information.

Table 7-11. Principal communication information

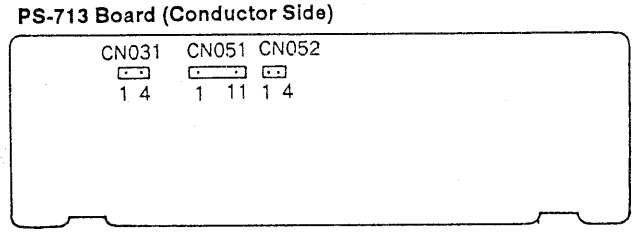
Data from the mode controller to the mechanism	
(01)	The function mode at present (next)
(02)	The function mode of final purpose
(03 – 05)	Target address of search (Time/Frame)
Data from the mechanism controller to the mode controller	
(01)	The function mode at present (next)
(06)	The flag for completion of function mode change (0 bit)
(13)	Current chapter/track number
(14)	Current index number
(15 – 17)	Current address (Time/Frame)

7-6. POWER SUPPLY CHECK (PS-713 BOARD)

Mode	Stop
Measuring equipment	Digital voltmater
UNREG +16 V check	
Measurement point	Pin ① of CN051 (Pin ②, GND)
Specified value	16.0 ± 1.0 V
UNREG −16 V check	
Measurement point	Pin ③ of CN051 (Pin ③, GND)
Specified value	−16.0 ± 1.0 V
REG +8 V check	
Measurement point	Pin ③ of CN053 (Pin ②, GND)
Specified value	8.0 ± 0.5 V
REG −8 V check	
Measurement point	Pin ① of CN053 (Pin ③, GND)
Specified value	−8.0 ± 0.5 V
POWER MUTE check	
Measurement point	Pin ④ of CN051 (Pin ②, GND)
Specified value	17.0 ± 1.0 V
EVER 5 V check	
Measurement point	Pin ④ of CN031 (Pin ②, GND)
Specified value	5.0 ± 0.3 V

- Confirm that the power supply voltages satisfy the respective specified values.

PS-713 Board (Conductor Side)



7-7. SYSTEM CONTROL SYSTEM ADJUSTMENT

7-7-1. Microprocessor Clock Adjsutment (MB-702 Board)

Mode	Stop
Measurement point	Pin ① of CN102
Measuring equipment	Frequency counter
Adjusting Element	CT001
Specified value	14,318,180 ± 40 Hz

Adjustment method:

1) Adjust CT001 to 14,318,180 ± 40 Hz.

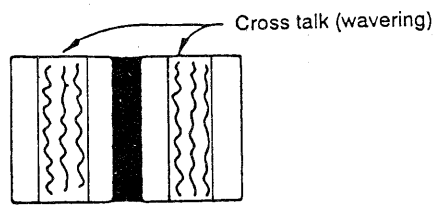
7-8. SERVO SYSTEM ADJUSTMENT

7-8-1. Side A Tilt Balance Adjsutment (MB-702 Board)

Mode	Still
Signal	Frame 770 (V BAR)
Measurement point	Monitor TV
Measuring equipment	Monitor TV
Adjustment element	RV401
Specified value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method:

1) Select STILL (⧓) mode.
2) Search the frame 770 and apply a vertical bar signal.
3) Adjust RV401 so that the right and left cross talks (wavering) become minimum as well as the same level.



Adjust so that cross talks appeared on the both sides on the monitor display become minimum as well as the same level.

Fig. 7-9.

9-973-553-11

Sony Corporation
Home Video Group

English
94C1641-1
Printed in Japan
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Published by CV Quality Engineering DIV.

MDP-750/A2
RMT-M25A

SONY

SERVICE MANUAL

US Model
Canadian Model
MDP-750
E model
MDP-A2

SUPPLEMENT-1

File this supplement with the Service Manual.

Service Manual (P.7-10, 11), Section "7-8. Servo System Adjustment" needs to add the following adjustment procedures.
Replace the following sections with this spplement.

7-8. SERVO SYSTEM ADJUSTMENT
7-8-1. ADJUSTMENT AFTER THE ATTACHMENT OF THE OPTICAL PICK-UP BLOCK
7-8-2. LD SIDE A TILT BALANCE ADJUSTMENT
7-8-3. LD SIDE B TILT BALANCE ADJUSTMENT

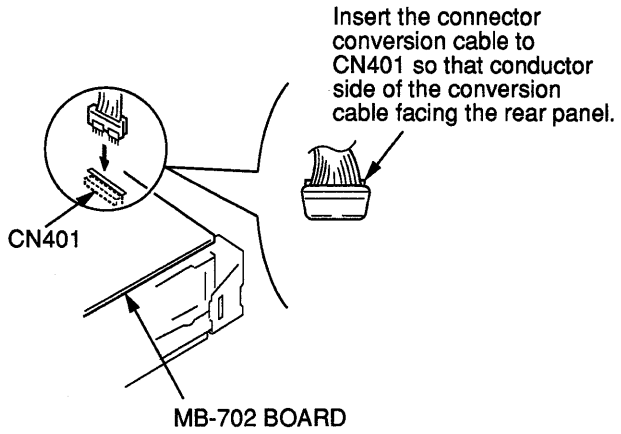
7-8. SERVO SYSTEM ADJUSTMENT

7-8-1. ADJUSTMENT AFTER THE ATTACHMENT OF THE OPTICAL PICK-UP BLOCK

1. JIGS AND TOOLS

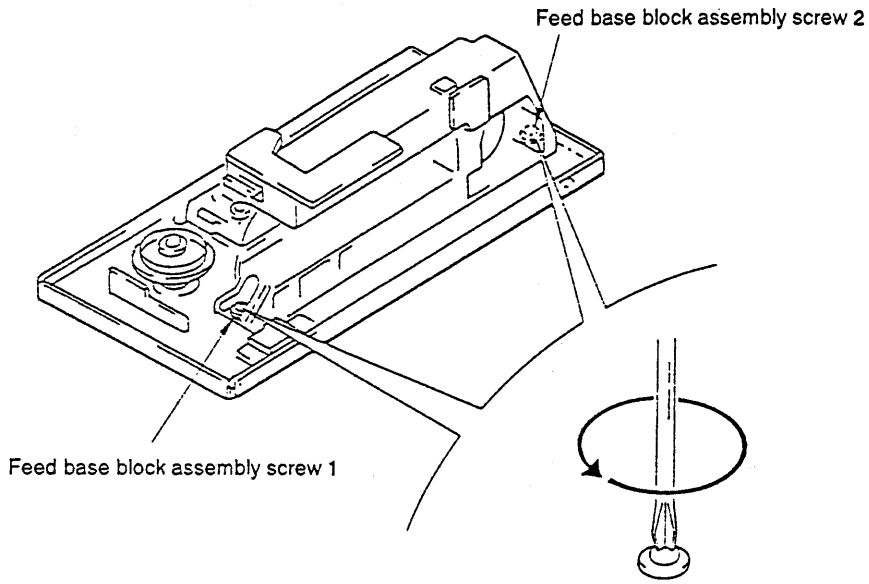
- Hexagonal wrench (Tangential screwdriver: 7-700-766-04)
- Oscilloscope
- Connector conversion jig (J-6082-059-B)
- Alignment disc Ref. 8 (HVL8: 8-797-008-00) /LD YEDS-18 (3-702-101-01) or an equivalent/CD
- Decentering screwdriver 4 ϕ (J-6095-029-A)

* Insert the terminal of the connector conversion jig to CN401 of the MB-702 Board.


Insert the connector conversion cable to CN401 so that conductor side of the conversion cable facing the rear panel.
CN401
MB-702 BOARD

2. CD ADJUSTMENT

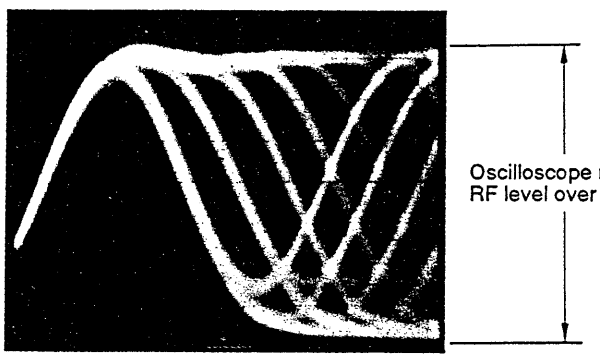
① Loosen the screws of feed base block assembly.



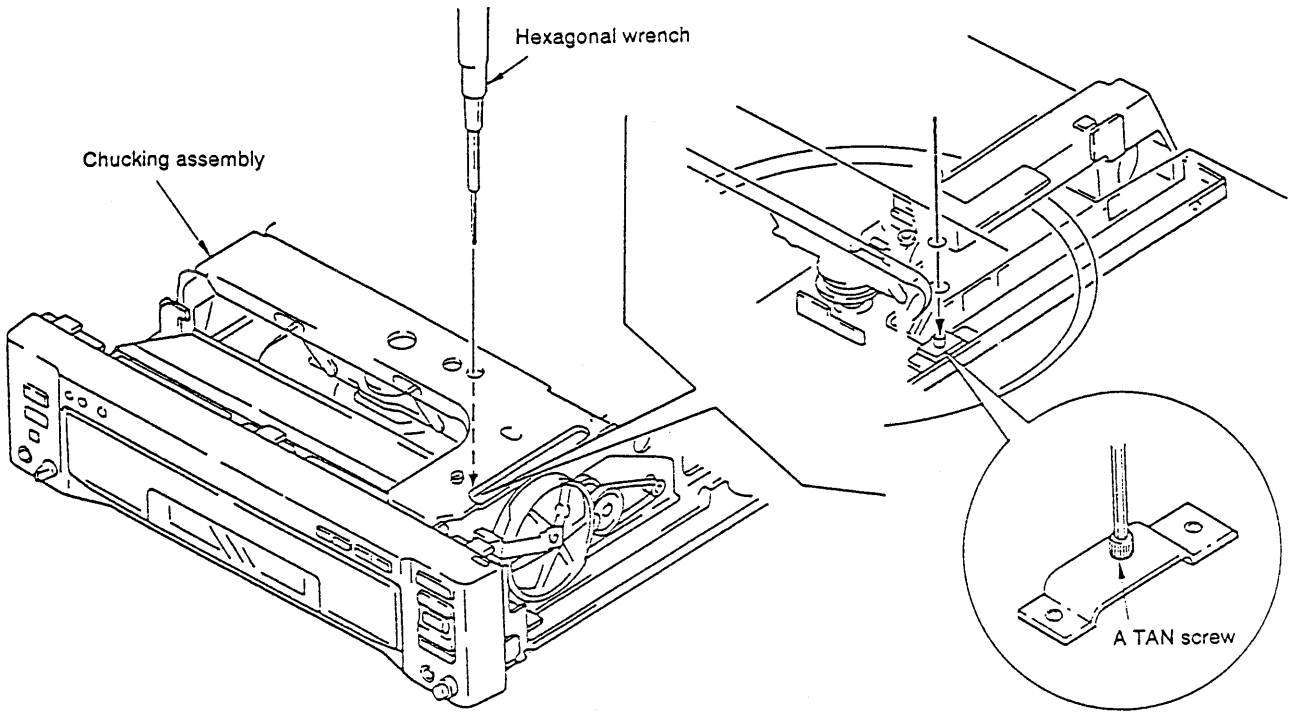
Loosen the screw about a turn from the state of being tight.

② Playback the CD alignment disc (YEDS-18) to press the Pause button about 3 seconds later.

③ Connect the oscilloscope to LD RF of the connector conversion jig to see if the waveform shown below appears.



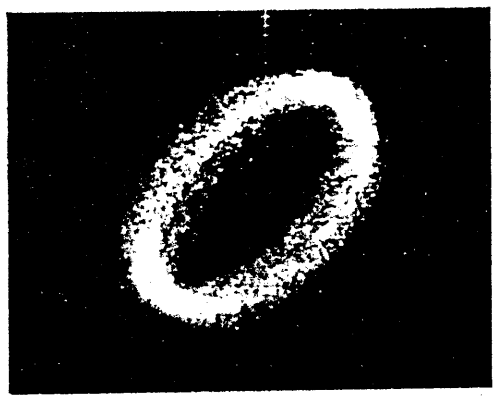
④ Insert the A TAN screw with hexagonal wrench 2.6 into the hole of top surface of chucking assembly to adjust so that RF Level is maximum. (Over 1.7 Vp-p)



Terminal E,F/TRK, SLED OFF
Oscilloscope X/Y Lissagous range
Difference within 35° with each 20 mV/div.

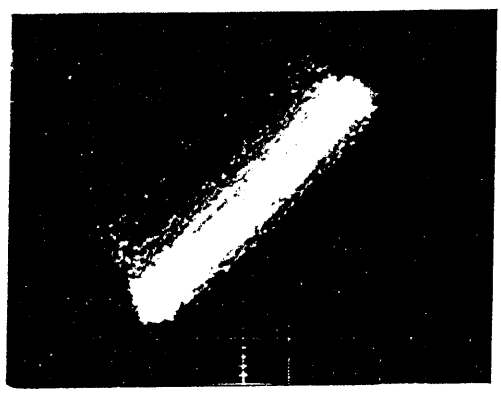
⑤ Insert decentering screwdriver into the feed base block assembly for RD adjsutment.

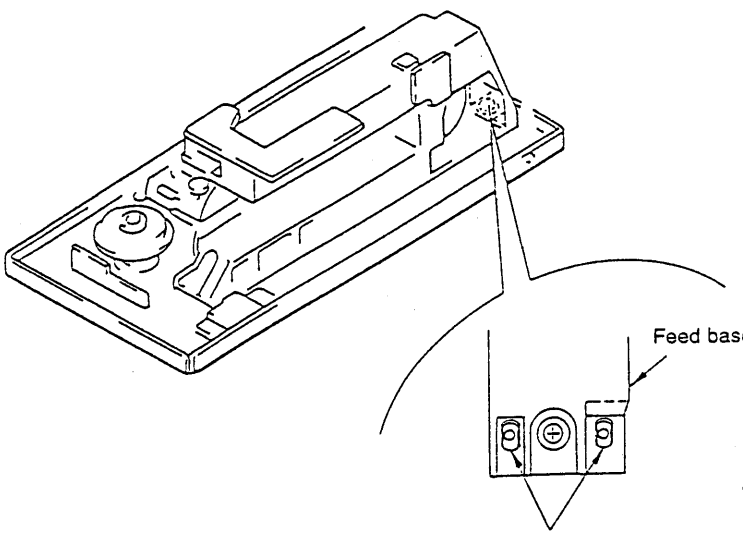
Before the adjustment.



Make the figure straight.

After the adjustment.





Insert the decentering screwdriver to either one of the holes for adjustment.

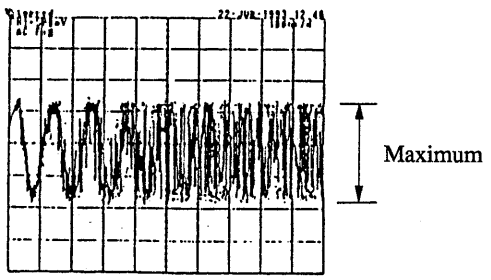
⑥ Take the DISC out to tighten the 2 screws of the feed base.

⑦ Apply suitable locking compound to A TAN screw.

7-8-2. LD SIDE A TILT BALANCE ADJUSTMENT

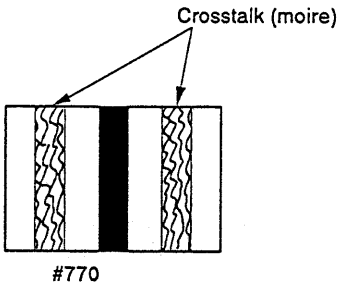
① Insert the LD reference disc (HLV-8) side-A in CAV mode. Playback the chapter 3 (#2201) in PAUSE mode.

② Connect an oscilloscope to the RF terminal of the connector conversion tool. Set both the TRACKING and SLED switches to ON. Adjust RV401 for maximum RF waveform.



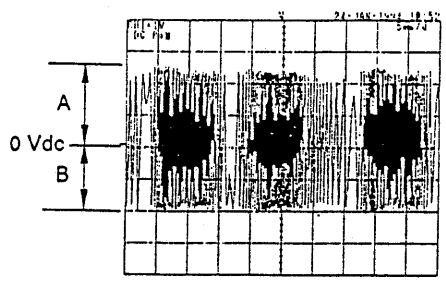
③ Playback #770 in PAUSE mode.

④ Check that vertical bars appear on TV monitor. Check that crosstalk (moire) is minimum and of equal level in left and right on the monitor TV screen using RV401.



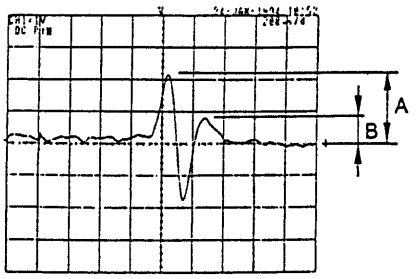
⑤ Tracking gain and focus gain adjustments are not necessary.
—Already adjusted at the optical pick-up block side—

⑥ Check the tracking balance.
Measure the registance at the Y terminal of TRACKING ERR on jig with oscilloscope.



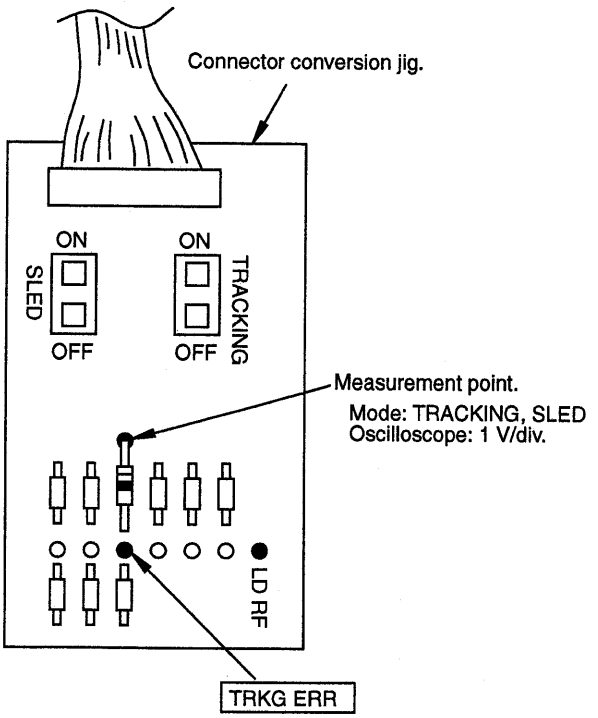
Check that it meets $-5 \leqq \frac{A-B}{2(A+B)} \times 100\,(\%) \leqq 8$

⑦ Then turn on the TRACKING and SLED to check the waveform of 1 track jump in STILL at the chapter 3 (#2201).



Check that it meets $B \leqq \frac{1}{2}A$

Check the TRACKING BALANCE.

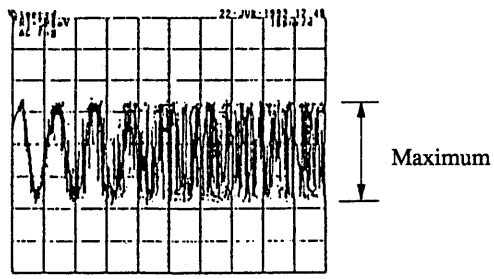


7-8-3. LD SIDE B TILT BALANCE ADJUSTMENT

① Loosen the RD and TAN screws (Hexagonal screw 2.6) on side-B of the feed-base.

② Insert the LD reference disc (HLV-8) side-B in CAV mode. Playback the chapter 3 (#2201) in PAUSE mode.

③ Connect an oscilloscope to the RF terminal of the connector conversion tool. Set both the TRACKING and SLED switches to ON. Adjust RV402 for maximum RF waveform.

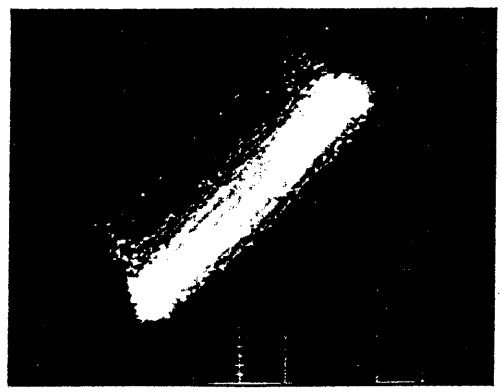


④ Insert an eccentric screwdriver tip to the B-TAN adjustment hole. Adjust the B-TAN for maximum RF waveform in the same manner as step ③.

⑤ Playback #770 in PAUSE mode.
Check that vertical bars appear on TV monitor as in the side-A. Check that crosstalk (moire) is minimum and of equal level in left and right on the monitor TV screen.

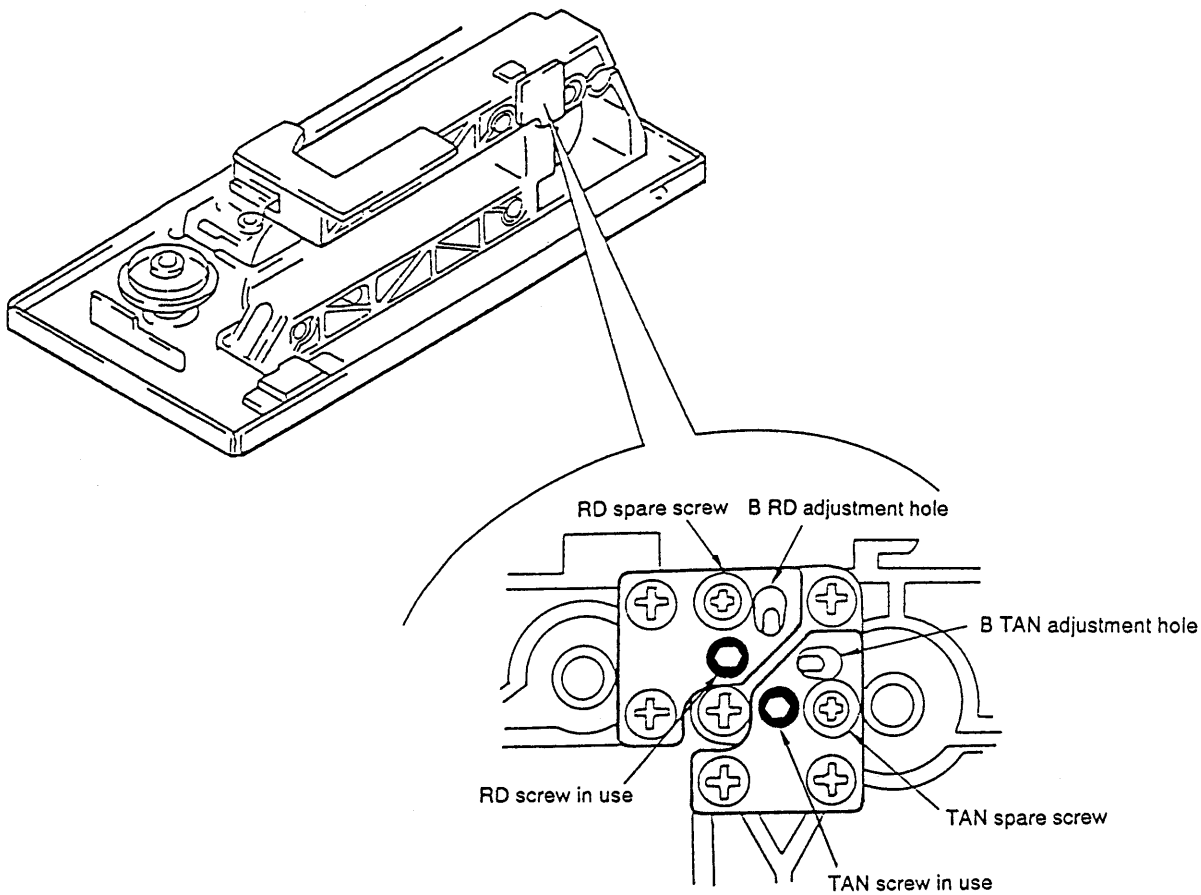
⑥ Send the disc to Chapter 3 (#2201) to pause.

⑦ Turn off the SLED and TRACKING to adjust inserting the decentering screwdriver to B RD adjustment hole so that the Lissagous waveform meets the standard.
Make not more than 1 turn in the TAN adjustment.



Jig terminal : E, F
Oscilloscope : X/Y lissagous 20 mV/div.
Phase difference : Within 35°

⑧ Take out the disc to tighten B TAN, RD screw.



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